FAO FOOD AND NUTRITION PAPER **24**

evaluation of nutrition interventions

FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS ROME

FAO FOOD AND NUTRITION PAPER **24**

evaluation of nutrition interventions

an annotated bibliography and review of methodologies and results

2nd edition

by

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nutrition programmes service
food policy and nutrition division

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SUMMARY

1. This is the second edition of an annotated bibliography covering evaluation methodology and evaluations of nutrition interventions. It contains more than 110 items on methodology and around 300 reports describing the results from evaluation studies. Included are most of the 250 items listed in the first edition, which was compiled in 1980, by G.P. Sevenhuysen and Ann Burgess. Almost all the items are available in the FAO libraries in Rome.

2. The most useful of the items are starred and also indexed in Tablas 1, 2 or 3.

Evaluation methodology

3. There was general agreement in the guidelines on evaluation methodology on the following points:

   - Evaluation should be an integral routine programme activity wherever possible;
   - Field staff must be involved at all stages of the evaluation including interpretation;
   - Results should be rapidly 'fed-back' to allow adaptations to be made to the programme if necessary.

4. Many of the guidelines did not adequately cover the following points:

   - How to conduct both 'operational' and 'impact' evaluation;
   - The importance of taking into account, when designing the evaluation, the needs of the people who will use the results;
   - How to select a representative sample;
   - How to overcome the problem of 'drop-outs';
   - How to measure 'leakage' of programme inputs;
   - How to control for non-programme variables;
   - How to distinguish among the effects of multiple inputs;
   - How to measure costs and cost-effectiveness;
   - How to ensure data reliability.

A review of reports of evaluation studies confirmed that better guidelines are needed in these areas.

Evaluation reports

5. In only about one third of the studies examined were sufficient details available for a good assessment to be made of the reliability of the results.

6. Among the problems that made it difficult to assess the value of some of the results were:

   - A lack of specific programme objectives and of baseline data;
   - Inadequate statistical testing of the results;
   - Conclusions based mainly on subjective opinion rather than objective information;
   - A weak data base, due to an unrepresentative sample, a high 'drop-out' rate among the selected sample, or insufficient data collected;
   - A lack of information on the 'dosage' of the input actually reaching the recipients;
   - A lack of information on possible differences in age distribution, and other variables, in the test and control groups;
   - No control of non-programme variables;
   - An evaluation design that did not allow the different contributions of multiple programme inputs to be assessed;
   - No data on costs;
   - Lack of information on which to judge data reliability.

List of abbreviations and special terms used

A = Arabic
ABCAR = Brazilian Association of Credit & Rural Assistance
AC = mid-upper-arm circumference
ANP = applied nutrition programme/project
C = Chinese
CARE = Cooperative for American Relief Everywhere
C.B. = country box
CFA = WFP Committee on Food Aid
'cleaned' = data that has been scrutinized for obvious errors
COAG = FAO Committee on Agriculture
CRS-U.S.C.C. = Catholic Relief Services - United States Catholic Conference
CSM = corn soya milk
Doc. no. = document number
DSM = dried skimmed milk
E = English
F = French
FFHC. AD = Freedom from Hunger Campaign, Action for Development
FPC = fish protein concentrate
F.U. = follow-up
H/A = height-for-age (expressed as % of reference)
Hb = haemoglobin
H.I.I.D. = Harvard Institute for International Development
ICFSN = International course in food science and nutrition
ICSM = instant corn soya milk
IDS = Institute for Development Studies
IFPRI = International Food Policy Research Institute
IGC = WFP Intergovernmental Committee
INCAP = Institute of Nutrition for Central America & Panama
Index = index to current literature on food and nutrition in NBL
IP = in-patient
IU = international unit
IUNS = International Union of Nutrition Sciences
LIB = David Lubin Memorial Library, FAO, Rome
maln = malnutrition
MCHN = maternal and child health nutrition
MIT = Massachusettes Institute of Technology
'mothers' = pregnant and lactating women
MSG = monosodium glutamate
NBL = Nutrition Branch Library, FAO, Rome
NRC = nutrition rehabilitation centre
NRU = nutrition rehabilitation unit
Nutr. Plann. = the journal *Nutrition Planning*
OP = out-patient

PAG = Protein-Calorie Advisory Group (of the UN)
PAHO = Pan American Health Organization
PEM = protein energy malnutrition
PKFM = post kwashiorkor feeding mixture
R = Russian
S = Spanish
S.B. = subject box
S.D. = standard deviation
SCN = ACC/Sub-committee on nutrition (of the UN)
sharing = rations shared among household members
substitution = ration replaces some of normal diet
UNICEF = United Nations Childrens Fund
UNITAR = United Nations Institute for Training and Research
UNU = United Nations University
US = United States of America
USAID = United States Agency for International Development
USDA = United States Department of Agriculture
W/A = weight-for-age (expressed as % of reference)
WFP = World Food Programme
W/H = weight-for-height (expressed as % of reference)
WHO = World Health Organization
(x kcal & y g. protein) = amount provided by ration per head per day
y = year
? not known or not clear

1. INTRODUCTION

1.1 Purpose and scope of the bibliography and review

This annotated bibliography has been prepared to make existing information on the evaluation of nutrition interventions in developing countries more widely known. It covers documentation on methodologies for evaluating the nutritional impact of nutrition interventions, and reports of evaluations of such interventions. Most of the items are in the libraries in FAO Headquarters.

Approximately 110 items on the methodology of evaluation and 300 items describing or reviewing the outcome of nutrition interventions have been included. For a few items, only an abstract or reference could be found.

This second edition of the bibliography includes almost all the 250 items listed in the first edition which was compiled by G.P. Sevenhuysen[1] and Ann Burgess[2].

1.2 Selection of the items

The following criteria have been used to select an item for inclusion in the bibliography:

- The item covers aspects of methodology relevant to the evaluation of nutritional impact of intervention programmes/projects *or* reports the nutritional impact of nutrition interventions in developing countries[3];
- The item is in, or available through, the libraries in FAO Headquarters;
- The item has been prepared within the last decade.

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[1] During the time he was FAO Nutrition Officer.

[2] FAO Consultant

[3] A few of these interventions might be termed experimental trials rather than programmes or projects. They are included as they gave very significant results.

Items not fulfilling these criteria have been included only if they are of special interest or are widely used. To prevent unnecessary work for future researchers, a few items whose titles misleadingly suggest they contain pertinent information, have been included and their irrelevance noted.

The following sources were used to locate items:

- Card indexes, computer data bases, microfiches, country boxes, journals, abstracts and reviews in the libraries at FAO Headquarters;
- The food habits and evaluation files in the Nutrition Division, FAO;
- Staff members in FAO, WFP and other agencies.

One of the best single sources of items was the journal *Nutrition Planning*.

1.3 Organization of the bibliography

The way in which the items in the bibliography are arranged is shown in the table of contents on p v. Items covering evaluation methodology are in Section 3 and reports of evaluation studies are in Section 4. Those items considered to be of particular interest are starred and indexed in Tables 1, 2 or 3.

Each sub-section within Sections 3 and 4 has been assigned a letter (A - R). Items within the sub-section are prefixed by the letter and listed alphabetically according to author. Items located just before printing are at the end of the relevant sub-section. Reviews bave been placed in sub-sections 3.1 or 4.1, or in the appropriate 'programme or service' sub-section.

Each item is referenced (see below) and the contents out-lined. A comment is made on the item's value to programme planners and evaluators, except where only an abstract is available or the item found just before finalization of the bibliography. Items which may not be easily accessible to readers and which were thought likely to be of special interest have been described in some detail.

The entry for each item is given in the following format:

Item no.	Author Date	Title Source Number of pages Agency for which prepared (if relevant), Languages, Location in FAO, Rome.

Abstract

Comment

Languages - are mentioned if the item is available in languages other than that in which the title is given.

Location in FAO, Rome - Library call numbers and document accession numbers are given where possible, except for journals whose call numbers are listed in the FAO libraries. Some items which have not been published in regular journals or books are currently available through the periodical *Nutrition Planning*[1]. For these items, the Nutrition Planning document number is given[2]. If only an abstract or reference could be found, this is indicated together with its source. The FAO Nutrition Branch Librarian may be consulted if there are difficulties locating items.

A complete list of abbreviations and special terms used in the bibliography is on p 3. The following have been commonly used in the item references.

A = Arabic
C = Chinese
C.B. = country box
Doc. no. = document number
E = English
F = French
Index = index to current literature on food and nutrition maintained by NBL
LIB = Main Library, FAO
NBL = Nutrition Branch Library FAO
Nutr. Plann. = the journal *Nutrition Planning*
S = Spanish
S.B. = subject box

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[1] *Nutrition Planning*, P.O. Box 8080, Ann Arbor, Mich. 48107, USA.

[2] This is also the number of the abstract of the item in the journal.

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2. REVIEW

2.1 Evaluation methodology

Many aspects of methodology, relevant to the evaluation of nutrition interventions, are covered in the literature although the information is very scattered and sometimes 'buried' in lengthy documents. Some of this literature is reviewed in items A06, A08 and A09. All the items located are listed in Section 3 of the bibliography and the most useful of these are starred and also indexed in Table 1. Also included in this table are examples of good evaluation models and procedures from the reports in Section 4.

Table 1: Index to useful references on evaluation methodology

Major topics covered:	
- Purpose, concepts, models in evaluation	A03 A09 B06 B12 B18 B19 B28 B33 B46 B48
- Problems associated with evaluation	A09 B02 B19 B49
- Impact evaluation procedures	B19 B20 B28 B50
- Survey procedures - general	B44 C02 C03 C05 C11 C20 C34 C48
- sampling	B28 B44 C05 C11
- data collection	B28 C03 C04 C05
- data analysis	A04 B28 B44 C05 C15
- data interpretation	A04 A06 A09 B12 B28 C15 C23
- data presentation and use	B28 C15
- field operations	C05 C11 C48
- Indicators - choice & characteristics	A06 A09 C06 C24 C29 C49
- Specific indicators of nutritional status	B44 C01 C05 C48
- anthropometric	C27 C46
- clinical	C05 C07 C27 C45 C48
- morbidity & mortality	B02 C01 C48
- Measurements of - knowledge & attitudes	B16 B24 B48 B50 C50
- behaviour & habits	B28 B48 C09
- food consumption	B28 C06 C07 C09 C11 C15 C18 C22 C26 C51
- Operational evaluation	
- procedures	B20
- costs	A01 B28 B33
- Cost effectiveness	B02 B28 B33 B48
- Examples of good evaluation design or procedures in evaluation reports	E11 E12 E27 G02 G27 G43 H03 H11 H23 I07 I08 I12 J06 J09 J10 J20 J21 J22 J28 J32 K01 K02 K03 L01 M06 N08 N12 N18 N20 N22 N26 N27 Q13

A review of the evaluation guidelines in Section 3 showed that several did not define the scope of the evaluation (e.g. B12), or that they covered impact evaluation only (e.g. B28). Evaluation of nutrition interventions should, normally, include both operational evaluation (to assess efficiency and the degree to which inputs or services are reaching participants) and impact evaluation (to measure the effects of the inputs on the participants). Examination of the evaluation reports in Section 4 showed that in some (e.g. I02, J04), there were little data on operational evaluation. This meant that it was difficult to know, for programmes reporting a poor impact, whether this was due to inputs not reaching the participants or to inappropriate inputs (e.g. J04). In those interventions reporting a positive impact (e.g. I02), evidence that inputs had reached recipients in adequate 'dosages' would have made the results more convincing.

The importance of designing the evaluation, and the format of the report, so that it meets the needs of the people who will use the results (e.g. programme planners and managers, community leaders, donor agencies) was not mentioned in many of the guidelines (some exceptions were B02, B19). The lack of guidance on this aspect of evaluation design explains, perhaps, why the majority of evaluation reports did not specify for whom the results were intended. A few gave data which seemed unlikely to help in improving the programme or in planning similar interventions (e.g. E09).

There was general agreement among the authors of most guidelines on the following points:

- The desirability of evaluation being an integral routine activity of programme/project management. In spite of this, many of the evaluation models which were recommended assumed expertise and facilities (e.g. computers) which are not routinely available to many programmes. Indeed, many of the evaluations which reported the most reliable results had been initiated and planned by donor agencies (e.g. J02, L01), supervised by external experts (e.g. K01, E27), analysed by computer (E27), and based on survey data rather than routine reports (e.g. F09, I12). Few studies had utilized the data from growth charts, although charts were often used to monitor weight gain.

- The need to involve field staff at all stages of the evaluation process. In some this had occurred to a limited extent (e.g. E10, E23), but usually field staff had assisted only with data collection. No intervention had been evaluated solely by local field personnel (although reports of this nature are, perhaps, unlikely to reach the international literature).

- The importance of rapidly 'feeding-back' results so that adaptations to the programme, if needed, can be made promptly and staff and community interest maintained: In only a few studies were there indications that this had been done (e.g. E20), and most reports made no mention of how long it had taken for results to reach programme managers.

- The limited value of subjective opinion. A few of the studies examined (e.g. J08, J23) had based conclusions on data collected largely by interviews and personal observations. It is difficult to judge the validity of these results. However, informed judgements by local staff are often needed to interpret objective data (A08).

Recommended indicators of nutritional status in young children were listed in several guidelines but only a few (e.g. A06, C28) discussed in detail their required characteristics (i.e. sensitivity, objectivity, practicality). Some recent publications (B44, C46) recommended using weight-for-height and height-for-age, and several of the studies had used these indicators (e.g. E27, J18). However, weight-for-age, classified in various ways (e.g. I11), or arm circumference (e.g. E04) had been used in most evaluations of nutritional impact. It is hoped that the WHO guidelines (B44) will help to standardize the classification of anthropometric data and thus make possible comparisons between results of different evaluation studies.

Young child mortality rates were used as indicators of programme impact in a few evaluations (e.g. G02, K01), although some authors feel they may not be very sensitive (A06). Often mortality and morbidity rates had been derived from recall data (e.g. E09, J43), and may, therefore, not have been very accurate.

There are adequate guidelines for the collection and analysis of data on food consumption (E28, C06, C11, C15) and, to a lesser extent, on nutritional habits and knowledge (B48, C09). In spite of this, some of the reported results on food intake and knowledge were considered unreliable because the sample was unrepresentative or because only one 24-hour recall of food consumption had been taken (G31, J02).

Few guidelines gave adequate information on the following:

- How to select a valid sample. Samples in the reported studies were often not representative because they were too small (G01, G09), were too low a proportion of total participants in the programme (J12, J18), or had not been selected randomly (G16);

- How to overcome the problem of 'drop-outs' from the sample over the period of the evaluation. There was a high 'drop-out' rate, which could have affected the representativeness of the samples, in several of the evaluations reported (e.g. J05, J42, J43);

- How to measure 'leakages' of inputs. The amount of input or service (i.e. food ration, health care, education) actually reaching participants is dependent on: the amount available and/or offered; participant attendance; in the case of food rations, the degree of substitution (i.e. replacement of the regular diet by the rations) or sharing among household members. No account had been taken of input leakages in several of the evaluations reported (e.g. E09), although substitution and sharing were considered important reasons for low net increases in food consumption in many feeding programmes (D03, J06);

- How to control for the effect of age on nutritional status. In several of the evaluations it was not known whether the age distributions of test and control children were similar (e.g. K04, L04). If they were not, conclusions drawn from results could be invalid, because susceptibility to malnutrition varies with age;

- How to control for non-programme variables. Although it was generally agreed in the guidelines that this was best achieved by using matched test and control groups, examination of the evaluation reports highlighted the difficulties in obtaining valid controls. Controls drawn from the same area as the test sample can be influenced by the intervention (e.g. G12, J31) whereas controls from other areas may be subject to different non-programme influences (e.g. F08, I02). Where all the individuals with a certain characteristic (e.g. weight deficit) participate in a programme, no controls are possible (e.g. J18). Most of the evaluation studies fell into one of the following categories according to when, and from whom, output data had been collected: i.e.
    - from test and control groups before and after the intervention (e.g. E27, I12, N20);
    - from test and control groups after the intervention (e.g. E04);
    - from test group before and after the intervention (e.g. G09, J42);
    - from test group after the intervention compared to national or community data (e.g. E23, H14).

  In some studies, where control groups had been used, they had not been matched for characteristics, such as initial nutritional status, which are highly likely to influence programme impact (e.g. G05, L03).

- How to distinguish among the effects of multiple inputs. Because the model used for evaluating many of the integrated interventions and applied nutrition programmes had not taken this factor into account, it was difficult to know which of the several inputs had caused the reported impact (e.g. E09, F08);

- How to measure costs and cost effectiveness. Few of the studies covered this difficult but important aspect of evaluation (some exceptions were E27, H13). Fewer studies reported, or commented upon, the cost of the evaluation exercise itself in spite of this factor being a major constraint to evaluation;

- How to motivate field staff to collect reliable data. Little mention was made in either the guidelines or reports of the extent to which the interest of outside experts or other stimuli (e.g. financial) can motivate field staff to improve both data collection and programme implementation;

- How to check the reliability of the data collected. One of the problems in assessing the validity of the results was that few studies reported whether, or how, data quality had been controlled. In some evaluations it was suspected that the data collected were of limited reliability.

A confusing variety of terminology was used in the literature on both evaluation methodology and evaluation studies.

2.2 Evaluation reports

About 300 evaluation studies reporting the nutritional impact of nutrition interventions are listed in Section 4 of the bibliography. In only about a third of these were there sufficient details for a good assessment of the value and validity of the results to be made. Considering the large number of nutrition interventions begun over the last 1 - 2 decades, this strongly suggests that useful evaluation data can only be available from a small fraction. (In item D02, 201 nutrition interventions are listed of which only 57% indicated the availability of any kind of evaluation data).

One of the problems in assessing the results was that the specific objectives of many of the programmes were not stated clearly. It was difficult, therefore, to know if the intervention had had the planned effect (e.g. G16). Another problem was that there was sometimes little baseline data against which to measure progress (e.g. F11). In other studies, some results had not been statistically tested (e.g. E11), or only differences in the means of output variables from test and control groups, rather than in distributions (which are more sensitive), had been examined (e.g. J12). Other shortcomings in the evaluation methodology used have been discussed in sub-section 2.1 above.

Most items in Section 4 of the bibliography carry a comment on the reliability and usefulness of the reported results and those studies considered to be of particular interest to programme planners and evaluators are starred and also indexed in Table 2.

Table 2 - Index to evaluation studies of particular interest

Type of programme or service	Item number
Integrated health & nutrition interventions	E03 E08 E11 E12 E17 E23 E27
Applied nutrition programmes/projects	F09 F11
Nutrition education	G02 G03 G20 G27 G43
Nutrition rehabilitation centres	H03 H05 H11 H13 H19
Feeding programmes for mothers & young children	
- on-site	I07 I08 I11 I12
- take-home	J02 J06 J09 J15 J18 J20 J21 J22 J28 J31 J32
Feeding programmes for households	K01 K03
Feeding programmes for schoolchildren	L01
Nutrition planning & policies	M03 M05 M06
Food fortification & high-dose supplements	N06 N08 N12 N15 N18 N20 N22 N26 N27 N29
Food subsidies	002 003 005 006 010 012
Formulated foods	G20
Training	Q13

A general discussion of the results of the evaluation studies is not attempted here because many of the more important ones have already been reviewed by other authors. These reviews are listed in sub-section 4.1 or other appropriate sub-sections, and the most useful of them are starred and also indexed in Table 3.

Table 3 - Index to reviews of evaluation reports of particular interest

Type of programme or service	Item number
General	D04 D14 D27 D28 D29
Integrated health & nutrition interventions	D09 D11
Nutrition education	G42
Nutrition rehabilitation centres	H01, H13
Feeding programmes	D01 D05 D08 D18 D21 D30 D32 D33 D35 L09
Food fortification & high-dose supplements	N01 N03 N04
Food subsidies	O11 O13 O14
Formulated foods	P01 P03

From the number of items in each sub-section in Section 4, it can be seen that by far the largest number of studies located evaluated feeding programmes or the feeding component of integrated interventions. It should be noted that studies on the impact of commercial baby milks were not sought because these products are rarely used in planned programmes.

A comprehensive list of evaluations of the nutritional impact of development interventions which do not have a major nutrition component have not been included in this bibliography. However, for the interested reader, a few of the more recent and important papers on the subject are given in sub-section 4.15.

3. EVALUATION METHODOLOGY : ANNOTATED BIBLIOGRAPHY

3.1 Reviews

A01 Austin J. et al. Nutrition intervention assessment and guidelines.
1978 Cambridge, Mass., H.I.I.D. for SCN 243p (612.39 Au7 NBL)

This publication provides, for planners, administrators and researchers, a summary of the nature and potential effectiveness of the major types of nutrition intervention programmes in developing countries. It includes: an overview of nutrition intervention design including evaluation methodology; detailed description of the definition, rationale, common forms and uses, costs and effectiveness of programmes of supplementary feeding, nutrition education, formulated foods, fortification, consumer price subsidies, agricultural productivity, integrated interventions; costs and effectiveness and how these may be assessed.

This review is based on an in-depth examination of the publications and documentation from more than 200 nutrition programmes or projects. Thus, although the mass of data presented is rather daunting, it does contain much information useful to those planning programme evaluation (particularly p15-21 where the problems and methods associated with evaluation and with assessing cost effectiveness are discussed).

See item D03.

A02 Backer, T.E. et al. Information resources for program evaluators.
1980 Eval. & Prog. Plann. 3(1):25-33 (LIB)

Includas lists of US books, journals and newsletters and professional societies dealing with programme evaluation. The resources identified are mainly of use to those conducting evaluation research studies or training in programme evaluation.

Some of the resources mentioned may be of use to those planning nutritional evaluations, although they do not deal specifically with nutrition.

A03 Cole-King, S. Health and development : anatomy of decision-making.
1980 Proc. Intern. Hlth Conference, June 11-13 1980. Nat. Council for Intern. Hlth, Washington D.C. 7p (S.B 2h NBL)

This keynote address discusses the definition of, and reasons for evaluation and its role in decision making. The author points out that evaluation cannot be truely objective since the priorities and perceptions of the evaluator will effect evaluation design and presentation of results. Communication is the essence of evaluation and organization. Voluntary agencies, who often pioneer new health approaches, have a special responsibility to communicate their results. The approaches to evaluation of primary health care are discussed in detail.

A perceptive examination of the role of, and approaches to evaluation.

A04 Drake, W.D., Miller, R.I. & Humphrey, M.S.W. Project on analysis of
1980 community level nutrition programs. Vol. I. Final report : analysis of community-level nutrition programs. Ann Arbor, Mich. Community Systems Foundation. For USAID. 171p (Nutr. Plann. Doc. no 1426. 612.39 P945 NBL)

The purpose of this four year interdisciplinary project was to gain a clearer understanding of which characteristics of a community level programme result in improved nutritional status of children. A complimentary objective was to further develop the methodology of programme evaluation. Data were gathered by reviewing the literature, studying project reports, visiting projects and in-depth analysis of seven ongoing projects. The projects were: Candelaria, Colombia (item E08); Kottar Social Services Society, India (item E10); Esparanca Santarem, Brasil (item E11); Primops, Colombia (item E20); rice fortification, Thailand (item N08); Community Development Project, Indonesia; Community Development Project, Honduras. These are reported in detail in volumes 2 - 6 of the project.

Data from these projects were 'cleaned', placed in a newly developed data base management system and subjected to a range of analysis procedures. A system of rapidly retrieving data and feeding it back to the project was developed. This rapid information feedback system and the data processing procedures are described in volumes 7 and 8 of the Project.

This first volume reports very briefly the evaluation design and results of the projects reviewed and then examines in detail the findings regarding evaluation methodologies. This includes a discussion of the methods used to measure nutritional status, handle data (including data cleaning), and an analytic methodology. Recommendations on evaluation methodology include the need to: realize that rarely will there be a completely solid analytical conclusion regarding cause of change in a target population; include judgemental factors into the more quantitative evaluation design; plan at onset for successive cycles of analysis and project staff review.

When discussing the substantive findings the authors conclude that, because the 'environment' of a project changes and specific causes of malnutrition are rarely accurately known, it is difficult to plan an optimum intervention strategy. Mechanisms for evaluation and improvement must be built in. Components that contribute to a project being able to change in a positive way are listed.

The authors conclude that individually tailored programmes, rather than nationally planned ones, are needed, that locally generated data bases, originating from particular interventions, should contribute to national surveillance systems and that continuing funding should be contingent on demonstration of additional need.

This is a major work in the literature of evaluation methodology and intervention planning. Although only seven projects of very different types were examined in depth, the data from each were extensive and subjected to exhaustive analysis. This work complements to a large extent that of item D04, in which the results, rather than methodologies of interventions are examined in detail.

See items D09, E08, E10, E11, E20.

A05 Elzinga, A. *Evaluating the evaluation game*. Swedish agency for
1981 research cooperation with developing countries. Rep. no. R1 70p
(S 485 21 1981 no 1 LIB)

The report focuses on principles for the choice of evaluation methodology and pays particular attention to the literature on nutritional interventions. Contents include typology of specification and evaluation methodologies, cost-benefit and evaluation research, 'dependencia' and 'self-reliance' paradigms and alternative methodology involving participant observation.

A good report for those who want to examine in depth the underlying precepts of evaluation methodology.

*A06 Habicht, J.-P. & Butz, W.P. Measurements of health and nutrition
1978 effects of large-scale nutrition intervention projects.
In Klein, R.E. et al., ed. *Evaluating the impact of nutrition and health programmes*. New York, Plenum Press. p 133-182
(612.39 P19 NBL)

The choice of indicators needed to evaluate the nutritional impact of complex intervention packages are discussed. Contents include:

Operational definitions of health and nutrition; different types of evaluation studies; choice of indicators and discussion of their characteristics (i.e. sensitivity and selectivity) based on detailed analysis of previous programme evaluations; problems associated with evaluation of complex and large scale intervention programmes. The authors conclude that only height and weight, especially if measured longitudinally, have been reliably shown to be sensitive to improved PEM in preschool children, that morbidity and mortality appear to be poor and insensitive indicators and that more studies are needed to ascertain the usefulness of birth weight as an indicator of maternal nutrition. They emphasize that the sensitivity of an indicator can only be tested in single purpose intervention studies. These indicators can then be used to evaluate different combinations of interventions in order to design cost-effective integrated programmes.

This critical, in-depth analysis of indicators of nutritional impact is strongly recommended to those designing programme evaluation.

See item A07.

A07 Klein, R.E. et al. eds. *Evaluating the impact of nutrition and health*
1978 *programmes.* New York, Plenum Press. 462p
(612.39 P19 NBL)

This book examines evaluation strategies, in depth, at length and in rather academic terms, with the aim of stimulating new and innovative approaches. The contents include approaches to impact evaluation, assessing specific outcomes of intervention, implementing and using evaluation, and the practice and problems of impact evaluation. The sections that are of most interest are:

- Recent United States experience in evaluation research with implications for Latin America. Contents: evaluation of a programme in Colombia; rationale and use of evaluation; sources of bias and other factors to be considered in conducting and interpreting evaluations.
- Special issues for the measurement of programme impact in developing countries. Contents: operational, technical and ethical issues in 'process', 'impact' and 'comprehensive' evaluation.
- Political and organizational issues in assessing health and nutrition interventions. Contents: relative costs of programme implementation and evaluation in Latin America; need for local participation, for recognising the different perspectives of donors, host government and recipient community, and for understanding the local socio-politico scene.
- Some suggestions for improving the applicability and utilization of evaluation assessments, including some approaches for improving and broadening the utilization of results.
- Clarification of concepts and terms commonly used in evaluative research.

The book is recommended to anyone wanting to critically analyse present evaluation methodology and to develop improved evaluation designs.

See item A06.

*A08 Sahn, D.E. & Pestronk, R.M. Experiences and methodologies in
1978 nutrition programme evaluation: a literature review.
Ann Arbor, Mich., Community Systems Foundation. For USAID.
195p (612.39 Sal NBL)

This review aims to facilitate the activities of contractors involved in formulating evaluations of USAID-assisted nutrition programmes by providing a review of relevant experiences and methodologies. Contents include: terminology and concepts used in nutrition programme evaluation; types of evaluation; characteristics of indicators; distinction between research and evaluation; abstracts of literature on methodologies used in evaluation based on their detailed analyses of eight interventions. These emphasize the need for local staff to help in interpreting results, and of taking into account competing explanations for observed nutritional changes (e.g. changes in characteristics of target population and environment, project age, data reliability).

The examination of the different types of indicator in terms of objectivity, coverage, directness, completeness and precision, and the over-view of various concepts and methodologies associated with nutrition programme evaluation should be useful to planners. Also of relevance are the Foundation's conclusions on how to collect and interpret evaluation data.

For an updated version see item A09

*A09 Sahn, D.E. & Pestronk, R.M. A review of issues in nutrition
1981 program evaluation. AID Program Evaluation Discussion
paper no. 10. Ann Arbor, Mich., Community Systems
Foundation. 220p (Nutr. Plann. Doc. no. 1768.S73 207 NBL)

An up-dated version of A08 which includes a chapter on obstacles to impact evaluation and impact evaluation designs.

3.2 Guidelines on evaluation

B01 Anderson, M.A. & Grewal, T. Nutrition planning in the developing
1975 world. Proc. of regional workshops held by CARE in India,
Kenya and Colombia. (612.39 An21 NBL)

Includes the following topics: methods for assessing nutritional status, conducting a nutrition survey (both in rather general terms) and collecting anthropometric, clinical, morbidity and mortality data (described in more detail); procedures used to evaluate Project Poshek.

More details of procedures would have been useful.

See items B20 and E11.

B02 Austin, J.E. The perilous journey of nutrition evaluation.
1978 *Am. J. clin. Nutr.* 31(12):2324-2338 (NBL)

The contents include: barriers (technical, financial, psychological, political) to evaluation; purpose, users and timing of evaluation; target group definition, costing procedures and performance indicators (mortality, morbidity and degree malnutrition); cost effectiveness of biological impact and delivery systems.

A lengthy but readable and useful overview of the issues and problems involved in programme evaluation. It does not provide detailed guidelines on evaluation methodology.

B03 Bevly, S. Evaluation of nutrition education programmes in Israel.
?1969 Israel, Ministry Education & Culture. 75p (C.B. NBL)

Gives guidelines for evaluating nutritional knowledge and food consumption of school children.

Of limited use in developing countries.

B04 Bengoa, J. M. & Beaton, G.H. Some concepts and practical consider-
1976 ations in planning and evaluation. In Bengoa, J. M.
& Beaton, G.H. eds. Nutrition in preventive medicine.
WHO Monogr. Ser. no. 62 p213-222 (S241 2 NBL)

An overview of some of the important principles in evaluating interventions.

A rather general but nevertheless good discussion of the topic

B05 Brasilian Rural Extension System. Proposal for an evaluation study
197? of the activities under the social well-being programmes.
In Food production and nutrition education. ABCAR 9p (S)
(Brazil C.B. NBL)

Describes the proposed model, objectives and conceptual framework, of an evaluation designed to measure institutional efforts, programme effectiveness (in terms of changes in knowledge, attitudes, habits and skills and living conditions) in the areas of health, education and nutrition.

Probably of limited use outside Brazil.

See item B40 and E28.

*B06 Clark N. & McCuffery, J. *Demystifying evaluation.* World Education
1979 monogr. 1414 6th Ave, New York 10019 70p (S.B. 2h NBL)

A manual for conducting a participatory workshop on evaluation, derived from a seminar held in 1977 for staff from Kenya, USA, Ghana, Ethiopia, Sierre Leone. A detailed step-by-step approach is given.

This is a well written, well illustrated guide to conducting a workshop for field workers in developing countries. Many of the concepts are of interest to all those planning evaluation models.

B07 Deboeck, G.J. Systems for monitoring and evaluating nutrition
1978 interventions. For the World Bank 126p (612.39 D35 NBL)

The monitoring and evaluations systems used for testing the cost effectiveness of nutritional interventions through various delivery systems in Brazil are outlined. Contents include: a description of a nutrition intervention project in N.E. Brazil which used alternative delivery systems; details of a system developed to test the effectiveness of the project including the conceptual framework, key indicators and methods of monitoring and evaluating; detailed formats, checklists and questionnaires.

The evaluation system is specific to the project described and is probably not very useful outside Brazil although the objectives and related indicators, and the questionnaires might be used as practical examples.

For a review see item A09 p167.

B08 Delp, P. et al. Planning, controlling and evaluating projects.
1977 In Systems tools for project planning. p225-264
(from abstract in AID research and development abstracts
7 (4) no. 041 (PN AAD 374 NBL)

Discusses a test approach to planning, documenting and evaluating projects which have been widely used by USAID Missions.

B09 Didonet, V. Conceptual elements of the evaluation of the nutrition
1980 project Brazil/IBRD. In Santos, W. et al. eds. *Nutrition and food policy*. Vol. 1., New York, Plenum Press p347-352
(Report of the 11th International Congress of Nutrition 1978)
(612 (063) In 81 (1978) NBL)

Describes the conception and components of the Nutrition Project in Brazil (supported by the World Bank) which includes evaluation of the effectiveness of several service-delivery systems in food and nutrition. Strategies will be tested and evaluated in 'controlled' conditions. It is planned to evaluate each component and make a 'global' evaluation of the project so that recommendations for the formulation of a national or regional food and nutrition policy may be made.

Of interest to nutrition planners, particularly in Latin America.

B10 Ellis, R.A. & Cleemput, D.M. Evaluation of child feeding programmes
1972 in the developing countries: phase III report.
Washington, D.C., Cheechi & Co. For USAID 150p (613 E151 NBL)

Describes a model for contractors to use when evaluating the impact of USAID sponsored feeding programmes. Contents include details of evaluation design; field work preparation; collection, in schools and MCH centres, of data on growth, nutrition attitudes and behaviours, school enrolment and performance; detailed questionaires; how to estimate costs.

Because of the large amount of data recommended, the model is unlikely to be of practical use in other types of programme evaluation although parts of the questionnaires may be useful.

B11 Ellis, R.A. et al. Judging the merit of child feeding: a devel-
1975 opment handbook for planners, managers and evaluators.
Washington, D.C. Checchi & Co. (from reference in item A09 p90).

No details in reference.

See items B10 and B29.

*B12 FAO Planning and evaluation of applied nutrition programmes. Latham,
1972 M.C. Rome, *FAO Nutr. Studies* no. 26. 125p (F) (S).
(S238 2 26 NBL)

The aim is to assist administrative and technical professional officers to plan and evaluate coordinated ANPs. The contents include: overview of ANP planning and evaluation; mechanisms of government coordination and the role of individual ministries and agencies; components of ANPs; planning procedures (programme feasibility, objectives, baseline data); pilot zones, enlargement and expansion; evaluation (need, planning, tools, criteria, indicators, interpretation, cost effectiveness, side effects, review of methods used); sampling, data analysis; sample procedures for evaluating attitudes, and school and village nutrition activities; anthropometrical procedures.

This manual was prepared specifically for ANPs but can be recommended as an easy-to-follow general text for evaluating other types of nutrition intervention programmes. The procedures for evaluation are described in rather general terms but are clarified by the large number of examples. There is little discussion on the relative value (eg. sensitivity, cost) of the different indicators suggested. No distinction is made between 'operational' and 'impact' evaluation.

See item B17.

B13 FAO. A formulation methodology for technical assistance projects.
1975 Husch, B. *DDDE Occasional paper* no. 1 (S238 89 LIB)

A section deals with internal evaluation for project management.

B14 FAO. Evaluation of nutrition programmes. In Human nutrition in
1979 tropical Africa. Letham, M. p214-218. Rome, *FAO Food & Nutr. Ser.* no. 11 Rev. 1. (S283 95 NBL)

A brief overview of evaluation (uses, time-scale, personnel).

B15 FAO. Evaluation of technical cooperation projects: guidelines
1979 prepared by the Evaluation service. (8005287 NBL)

Contents include general considerations and a checklist of points to consider in an on-going evaluation of a technical cooperation project.

No specific guidelines for evaluating nutrition projects or nutritional impact.

B16 FAO Manual on in-course evaluation of group training activities.
1979 Appendix to 'Evaluation of training for development',
Ambrosius, A. EXTRACO, Rome. (44228-79-W LIB)

Guidelines and questionnaires for in-course evaluation.

A useful guide.

B17 FAO/WHO Report of the joint technical meeting on methods of
1965 planning and evaluation in applied nutrition programmes.
Rome, *FAO Nutr. Meeting Rep. Ser.* no. 39, 77p (F) (S)
(S238 13 NBL)

The report reviews methods of planning and evaluating ANP in order to provide background material for the preparation of a manual on the subject. Contents include: background and characteristics of ANP; basic concepts and definitions related to planning and evaluation; procedures for planning and the place of evaluation in programme operations; participation of personnel and community in planning and evaluation; indicators for evaluating health and education aspects of ANP. Background document for item B12.

Although somewhat outdated in certain specific areas the report gives a useful overview of some of the basic concepts and procedures still relevant to programme evaluation.

See also Reports of joint FAO/WHO seminars on the planning and evaluation of applied nutrition programmes held in Nairobi, Kenya *(FAO Nutrition Special reports no 4 1966 (F) S328 33 NBL) and in New Delhi, India (FAO Nutrition Special reports no. 5 1967 (F) S238 33 NBL) and Informe del Seminar Latinoamericano sobre planificación y evaluación de programas de nutrición aplicada. Popayan, Colombia, 1966.* (612 (063) L34 NBL)

*B18 Feuerstein, M.-T. Participatory evaluation - an appropriate
1980 technology for community health programmes. *Contact* 55 12p
(Nutr. Plann. Doc. no. 1178. S.B. 2h NBL)

This paper examines participation by the people, as it relates to evaluation of community health care, under the headings: 'the nature of participation'; selected examples of participation in practice'; 'implications of a participatory approach in evaluation'; 'participatory evaluation - an appropriate technology for community health programmes'. In the 3rd section the different levels of participation are described, techniques of participatory evaluation listed, the role of external agents defined and the goals of evaluation and the use of the results discussed. Participatory evaluation is seen to include the identification of goals, selection of procedures, methods of data collection, data analysis and implementation of findings.

An easy-to-read paper with important ideas on the nature and purpose of evaluation. More details of participatory evaluations that have been carried out would be useful for field workers.

*B19 Frankle, R.T. & Owen, A.Y. *Nutrition in the community: the art*
1978 *of delivering services.* Chapters 7-9, Saint Louis, Mosby,
p169-281 (612.39 F85 NBL)

A reference text for those designing or working with US community nutrition programmes. It includes: nutritional assessment, surveys and surveillance; tools of nutritional assessment (diagnosing the community's needs; dietary, clinical, anthropometric and biochemical assessments); detailed discussion of the principles and procedures for impact and operational evaluation and for various evaluation designs; practical difficulties in evaluation (changes in programme, relationship with personnel); use of evaluation results.

This is a well designed and comprehensive text which, although written for US personnel, contains much that is relevant to those evaluating programmes in developing countries.

B20 Gopaldas, T. *The Poshak project.* Vol. 2. New Delhi, CARE, India,
1975 p163-189 (612.39 G 64 NBL)

Describes in detail the model used to evaluate the operational feasibility and efficiency of the total delivery system for the project, and its health impact on the target group.

Useful for those planning similar types of project evaluations.

See items B01 and E11.

B21 Gordon, J.E. & Scrimshaw, N.S. Field trial of a newly developed
1972 food for prevention of malnutrition. *Wld Rev. Nutr. Diet.*
15:255-288 (NBL)

Gives guidelines for carrying out a field trial in order to anticipate the public health benefits of making a new food available to the general public. Describes planning, organization, data analysis and interpretation of the trial.

Only useful for evaluating this type of intervention.

B22 Gordon, J.E. & Scrimshaw, N.S. Field evaluation of nutrition
1973 intervention programmes. *Wld Rev. Nutr.Diet.* 17:1-38 (NBL)

Describes the rationale, scope, design, methods and uses of field evaluation in relation to food intervention programmes.

Recommendations may be too sophisticated for many programmes. Probably only useful at the academic level.

B23 Haque, W., et al. Micro-level development: design and evaluation
1977 of rural development projects: project design and
evaluation. *Dev. Dialogue* (2):113-137 (LIB)

Contents include: principles for initiating a rural development project whose fundamental objective is to enhance the political status of the exploited; discussion of basic criteria that should be evaluated (grouped as 'economic base', 'attitudes', and 'self administration and momentum'); use of frequent discussions of issues by target group as a method of evaluation; a 'sociogram' which shows, in diagramatic form, how the changes in each of the criteria (eg. economic benefit, collective spirit, generation of internal cadres) can be assessed on a 1-10 point scale, how the grouped criteria relate to each other and how, collectively, they can lead to improvements in social consciousness and political power.

Although this paper does not deal with nutrition programmes per se, the evaluation model presents certain concepts worthy of examination. (eg. the monitoring of progress on all development fronts simultaneously towards a common goal; evaluations carried out, largely, by the target groups).

For a more detailed description of the conceptual framework of this 'alternative' development strategy see Wignaraju, P., 1977. From the village to the global order. *Dev. Dialogue.* (1):35-48 (LIB)

*B24 Hoorweg, J. & McDowell, I. Evaluation of nutrition education in
1979 Africa: community research in Uganda, 1971-1972.
Afrika - Studiecentrum Communications 6, The Hague,
Mouton Publishers, 158p (373 H76 NBL)

The purpose of the monograph was to contribute to methods used for evaluating nutrition education in on-going programmes. The framework, research designs, indices used and practical difficulties in this type of evaluation are discussed. The nutrition education programmes at the I.P. and O.P. clinics of Mwanamigimu NRC, and at the O.P. clinic at Luteete health centre was evaluated using a random sample of regularly attending mothers and comparing them to a sample of new attenders. Care was taken to control for self-selection. Indices used included W/A and weight gain of child; knowledge scales and semantic differentials and paired-comparison scales for rating attitudes (full details given).

Results indicated that the semantic differential was not sensitive in the population but that the paired comparison scale was useful. The authors advocate evaluating the interjacent steps between educational input and change in nutritional status (i.e. knowledge and attitudes) in order to provide a better understanding of the process of the intervention.

Gives a good summary, from a practical view-point, of the strengths and weaknesses of commonly-used evaluation designs. The indices used and the study are fully described and discussed. Although these were developed for particular programmes in Uganda, they could be adapted to other situations. Strongly recommended to those evaluating nutrition education programmes.

B25 Hornik, R.C. Four notions about evaluation which are probably
1978 untrue: applications to educational broadcasting. (Mimeo).
Phil., Univ. Pennsylvania. 18p (S:B: 2h NBL)

A critical discussion of the following 'notions': evaluation is an objective, apolitical activity; the central concern is 'did the project work?'; the field experiment is the optimum evaluation strategy; social science research methods are most useful to on-going projects through application to evaluation.

Of interest to those planning programme evaluations.

B26 Icaza, S.J. La evaluación de programas de nutrición. *Nutrición 22*
1972 (2):191-203 (English summary) (NBL)

Discusses the prerequisites and value of evaluation at various stages of a programme, the characteristics and classification of specific indicators, and the necessity of good data collection. Emphasizes the need for evaluation of the methods and techniques used in ANP development.

Some aspects are relevant for planners today.

B27 Joint Committee on Standards for Educational Evaluation. *Standards*
1981 *for evaluations of educational programs, projects and materials.*
New York, McGraw-Hill. 161 p (S.B. 2 h NEL)

Intended for those evaluating education programmes in USA. Contents include: administering, budgeting, designing, contracting, reporting and staffing evaluations; analysing and collecting information; deciding whether to evaluate and defining the evaluation problem. Each section includes guidelines, pitfalls, caveats and illustrative cases.

Parts of the manual would be useful to those evaluating nutrition education programmes, particularly those in schools and colleges.

*B28 Jones, E.M., Munger, S.J. & Altman, J.W. A field guide for evaluat-
1975 ion of nutrition education. Alison Park, Penn., Synectics
Corporation. For USAID. 105p (612.39 Si8 NBL)

The aim of the guide is to provide programme planners and nutrition educators with information on how to measure the impact of nutrition education on food consumption. Included are: role and purpose of evaluation; detailed procedures for planning, sampling and data collection; step by step guide to data handling including sample recording and coding forms and simple statistical tests; alternative approaches to cost effectiveness (based on field testing in Latin America); numerous examples.

A simple and practical guide written for professionals, who are unfamiliar with statistics or experimental design, on how to measure cost effectiveness and changes in food consumption using statistically valid methods that do not require computer facilities. The very detailed procedures are not as complicated as they first appear and give a good idea of the amount of work involved in this kind of evaluation.

The guide could be adapted for evaluating other types of programmes provided trained interviewers were available. The methodology is, however, of limited use as it does not measure the intermediate steps that lead to changed food consumption (i.e. changes in knowledge, attitudes etc.) and hence interpretation of negative finding would be difficult.

For application of the field test see: Jones, E.M. & Munger, S.J. 1976. Application of field guide to three programs in Brazil. Synectics Corp. (C.B. NBL) and 1978. Application of field guide for evaluation of nutrition to programs in the Philippines. (C.B. NBL) and Villar, M.H. 1974. Avaliação de algunos aspectos qualitativos do consumo alimentar de un grupo de donas de casa da cidade de Santos - Estado de São Paulo. Thesis (Brazil C.B. NBL).

B29 Larner, H.A., Manley, R.P. & Eighmy, T.H. Evaluation methods for
1977 child feeding projects in developing countries: final report. Washington, D.C., Checchi & Co. 312p For USAID
(613 L561 NBL)

This summarizes and interprets, in great detail, the results of testing evaluation methodology in 30 projects in Colombia, Kenya and the Philippines and concludes that no viable evaluation strategy was found. It recommends that in future evaluations the following factors be considered: verifiable physical measurements; determination of actual ration sizes; short and simple survey instruments; the use of longitudinal or time dimension data.

Of limited value.

See items B10 and B11.

B30 Miller, R. & Pyle, D. Towards a monitoring and evaluation system
1981 for P.L. 480 Title II, maternal and child health programs in India. Ann Arbor, Mich., Community Systems Foundation.
107p (Nutr. Plann. doc. T02 - on order NBL)

No details available.

B31 Milton, R.C. Evaluation of the efficacy of programs for the control
1982 of severe xerophthalmia. *Amer. J. clin. Nutr.* 35(1):140-145.
(NBL)

Discusses the methods used to evaluate programmes controlling severe xerophthalmia and concludes that case control methods are more efficient and less expensive than population survey methods.

A useful paper for those evaluating vitamin A interventions.

B32 Nathan Associates. An evaluation scope of work for PL 480 Title II
1978 country programmes. For USAID. 34p (from abstract in *Nutr. Plann. 2* (2) no. 640)

Presents a set of criteria to evaluate PL 480 recipient country programmes using external evaluation teams. Evaluation is based on interviews, reports and documents. Questions, aimed at eliciting information and analysing performance, are given. The broad topics covered are: nutrition setting in host country; programme structure; analysis of the policies of the host government and the associated agencies; examination, at programme level, of regulations and management control, logistics, costs, budgeting and programme effectiveness; relationships between Title II and other programmes in the host country. Programme effectiveness is considered in terms of improved nutritional, economic and educational status. Examples from maternal child health, school feeding and food for work projects and indicators of impact are listed.

See item J24 for evaluations carried out using this guide.

*B33 Neumann, A.K., Neumann, C.G. & Ifekwunigwe, A.E. Evaluation of
1973 small scale nutrition programmes. *Amer. J. clin. Nutr.* 26 (4):446-452. (NBL)

Contents include: discussion, in rather general terms, of programme and evaluation design (goals, specific objectives, measurable criteria), inputs, anticipated outputs, timetable of project, records, and input/output analysis, cross-sectional vs longitudinal studies; cost analysis (output costs, cost benefit, cost effectiveness, cost of alternatives); staffing; built-in evaluation.

A short quite useful overview written in an easy-to-follow style.

B34 PAG Suggestions for the design and execution of field studies
1970 to evaluate measures for improving protein nutritional status. (Draft). PAG/FAO/WHO/UNICEF Nutrition Field Studies, Document (5.3/3) New York. 11p
(PAG Compendium Vol. D NBL)

Describes the principle factors that should be considered in planning and conducting field studies designed to test measures to improve protein nutritional status.

Of limited use.

See also Forman, M.J. 1971 Guidelines for evaluation of supplementary feeding programs for preschool children. PAG, Doc. 1.14/25. (PAG Compendium NBL)

B35 PAG Methodology for the evaluation of supplementary feeding
1976 programs: final draft (mimeo) Rueda-Williamson, R. et al.
126p (PAG Folders NBL)

The purpose of this guide is to provide the managers of food aid programmes with guidelines for assessing the accomplishments of supplementary feeding programmes in terms of inputs, results, cost effectiveness and operations. Contents include: description of evaluation methodologies suitable for countries at different stages of development; baseline data, types of objectives; types and characteristics of indicators for assessing programme effectiveness, resources, activities, performance quality and cost; cost effectiveness; description and application of an information system; detailed specimen forms, questionnaires and codes; hypothetical example discussed in depth.

The recommended amount of data to be collected is much greater than can be realistically expected for most programmes. Much emphasis is put on administrative aspects. No details given on how to collect the data or measurements suggested. Not a very easy document to use.

B36 Rueda-Williamson, R. Evaluation, an imperative responsibility in
1980 nutrition intervention programs. In Santos, W. et al. eds
Nutrition and Food science. Vol. 1. New York,
Plenum Press, p323-326 (612(063) In 81 (1978) NBL)

In a study of 140 nutrition programmes, only very few had analysed baseline, cost, coverage or impact data. The obstacles to programme evaluation and what local and international nutritionists may do to overcome this, are discussed briefly.

A brief concise plea for more programme evaluation.

B37 Sahn, D.E. Principles and guidelines for evaluation of PL 480
1981 Title II (Food for Peace) programs and policies. Mich
Ann Arbor, Mich., Community Systems Foundation.
(Nutr. Plann. doc. no. T03 NBL)

No details available.

B38 Taylor, A.J. & Cuny, F.C. The evaluation of humanitarian assistance.
1979 *Disasters* 3(1):37-42. (LIB)

Describes the reasons why evaluation of disaster assistance is not usually carried out; what information an evaluation can provide and why it is needed; the type of evaluation which should be done and how the results may be used (to improve future programmes or to train staff); the advantages and disadvantages of using outside consultants and of 'self-reliant' evaluations; how to select consultants.

Although the paper is not concerned specifically with nutrition aid programmes, many of the points made are pertinent to the planning of nutritional evaluations.

B39 UN Systematic monitoring and evaluation of integrated development
1978 programmes: a source-book. Doc. no. ST/ESA/78 150p. (F) (S)
(338.98 Un 4 LIB)

Gives a systematic approach to programme monitoring and evaluation and the field application of this approach.

Although not designed specifically for programmes with a nutrition component, this is a useful document as it gives a guide to the UN's concepts on monitoring and evaluation.

B40 UNICEF/FAO/OMS/Sistema Brasileiro de Extensão rural. Avaliação
19 ? dos trabalhos nos projetos de bem-estar: plano básico
da avaliação. 49p (Brazil C.B. NBL)

Gives the objectives, model, plan and timetable for an evaluation of the Brazilian social well-being projects.

See B05 and E28.

B41 US Dept. Health, Education & Welfare. Guide for developing
1978 nutrition services in community health programs. Maryland, Rockville. DHEW Public. no. (HSA) 78-5103. 60p
(614 P 96 NBL)

A guide to planning nutrition services which includes evaluation of the plan, assessing the quality of nutrition services and monitoring and evaluation of the programme.

A not very detailed guide written mainly for US workers.

B42 WHO Planning and evaluation of health education services.
1969 Report of Expert Committee. *Tech. Rep. Ser.* no. 409, Geneva,
32p (F) (R) (S) (LIB)

Of only limited use in nutrition programme evaluation.

B43 WHO Guidelines for evaluating a training programme for health
1978 personnel. Katz, F. M. *WHO Offset Pub.* no. 38 35p
(PAM 378 K15 NBL)

The book outlines the steps to be taken to reach an informed judgement about the character of a programme and its quality.

*B44 WHO. Measurement of nutritional impact: a guideline for the
1979 measurement of nutritional impact of supplementary feeding programmes aimed at vulnerable groups. WHO FAP/79.1 85p
(612.39 W89 NBL)

This guideline is to assist countries, and WFP, in identifying nutritional changes in children who are receiving food supplements so that food aid projects may be modified if necessary. It includes: type of recipients covered by the evaluation; selecting, and methods of taking measurements (age, weight, height); data collection, frequency and methods; sampling; data analysis and interpretation; implications of findings; illustration of data analysis using two simulated examples; standardization procedures to pinpoint errors in the collection of data; statistical aspects of sampling including tables of confidence intervals; instructions for making a length board; reference heights and weights for age, and weights for height by sex for ages 0 - 18 years, together with their deciles and 'standard deviation scores' as measures of dispersion.

An important document, prepared specifically for evaluating, with the least possible number of measurements, the impact on growth of food aid projects. The instructions given on data collection and analysis are clear and detailed but the procedure needed to reduce recording errors may seem complicated to many readers. The evaluation design, including how to test for significance, and the interpretation of results, is clarified by the two examples. Little mention is made of how to control for non-programme variables It will be interesting to see, from the field tests, whether deciles or 'standard deviation scores' are as practical as the well tried, if less accurate 'percents of reference'. This methodology assumes the presence of a certain level of expertise in a country.

B45 Wolf, R. The role of evaluation in nutrition education.
1980 In *World nutrition and nutrition education.* Sinclair, H.M. and Howat, G.R. eds, Oxford, Oxford University Press, and Paris, UNESCO p109-113 (373 Si 6 NBL)

Describes briefly, the five major classes of information that must be analysed for evaluation to be carried out, i.e. initial status of those who are to be served by the programme; proficiency of this group after a period of treatment; execution of the programme; costs; supplemental information (opinions and reactions of people concerned with the programme, supplemental learnings and side-effects). The unresolved issues in evaluation are listed as: the extent or scope of the evaluation, the use of control groups and the distinction between evaluation and research.

The subject is not treated in enough detail to be more than a limited interest to planners or evaluators.

B46 World Bank. The economic theory of the household and impact
1978 measurement of nutrition and related health programs.
Chernichovsky, D. *World Bank Staff Working paper* no. 302
Washington, D.C. 46p (S2186 7 NBL)

This paper gives the conceptual framework of the economic theory of the household and its relevance to nutrition evaluation research. Some basic properties of impact measures are discussed in relation to whether the intervention has long or short term objectives. Using the Narangwal project (item E27) as an example it is concluded that a combination of theoretical and other a priori considerations with econometric estimation techniques can be an efficient way to measure programme impact.

A good description of the economic theory/econometric model in programme evaluation.

B47 Wray, J.D. Evaluation: everybody talks about it. In Gyorgy, P.
1970 & Kline, O.L., eds Malnutrition is a problem of ecology.
Bibl. Nutr. Diet. no. 14 p142-160 Basel, Karger.
(S494 15 NBL)

Discusses why evaluation is necessary, the reasons why proper evaluation is not carried out (behavioural and environmental factors), and how these obstacles can be overcome. The necessary characteristics and methods of application are listed and an example from Candelaria, Colombia, (item E03) which was based on routinely measuring weight-for-age, is described.

Parts of the discussion are still pertinent.

*B48 Zeitlin, M. Directions for the evaluation of nutrition education.
1977 In Shack, K.W., ed. *Teaching nutrition in developing countries.* Report of international workshop on nutrition education techniques used in developing countries,
Santa Barbara, Calif., Meals for Millions Foundation. p170-193
(373 Sh11 NBL)

A guide to setting up an evaluation of a nutrition education programme. It covers: reasons for evaluation; uses and users of evaluation; procedures for evaluating nutrition education including a description of the 'KABINS' model (i.e. knowledge, attitudes, behaviour, improvement in nutritional status) and the variables that can be measured to assess each component of the model; methods of gathering data; list of other factors that might affect malnutrition (i.e. correlates); how to measure cost effectiveness.

The information and concepts are set out in an easy-to-follow style. The 'KABINS' model should be examined by those planning evaluation of nutrition education. No specific details are given on how to collect and interpret the various information and measurements suggested. The validity of some of the indicators might be queried.

For a review see item A08, p65. For a further description of the 'KABINS' model, see item A01, p125.

*B49 Zeitlin, M.F. & Austin, J.E. Impediments and requirements of
1980 nutrition evaluation. In Santos, W. et al. eds.
Nutrition and food science Vol. 1. New York,
Plenum Press p327-345. (Report of 11th Internat. Congress
of Nutr. 1978). (612(063)In 81 (1978) NBL)

The major impediments to effective nutrition programme evaluation are discussed in detail. These are: user designation; technical and financial constraints; psychological resistance; political factors and the literacy barrier. Means of removing or minimizing these constraints are presented.

A table showing the types of information needed, and how this may be collected, by type of user is given, together with a list of biological, KAB (knowledge, attitudes and behaviour), and delivery system cost effectiveness indicators and indicators of programme operational efficiency.

Colour-coded, age-independent growth charts developed for assessing nutritional status in Upper Volta are described. Special emphasis is given to involving the community in the evaluative process.

A good overview of the impediments to evaluation and some interesting ideas for overcoming some of them.

*B50 Zeitlin, M.F. & Formacion, C.S. Nutrition interventions in
1981 developing countries : Study II Nutrition education.
Cambridge, Mass. Harvard Instit. Internat. Devel.
For USAID 349p (612.39 Au711 Suppl. NBL)

The second part of the 3rd chapter in this monograph discusses in detail, methodologies for evaluating nutrition education. The two main groups of users of evaluation information are funding and planning agencies, and programme operators. Funders need data on administrative, environmental, socio-economic and cultural factors as well as on cost-effectiveness. Where possible, in large programmes, a comprehensive sample survey should first be done and then analysed to identify those variables which are unrelated to outcome. Such a survey should be carried out early enough to provide both baseline data and information for programme planning.

Guidelines for measuring costs and effectiveness (i.e. knowledge, attitudes, behaviour and nutritional status) and intervening variables are given. While some longitudinal data gathering is desirable, a cross-sectional study alone is considered to yield useful information at much less cost. Where possible, project/programme staff should conduct the evaluations with professional help if necessary. A list of cost-effectiveness and operating indicators is given.

Useful guidelines for those planning evaluation of large-scale nutrition education programmes. The detailed results of the evaluation of the Philippine Radio Nutrition project (item G43) will also be of interest to those concerned with the analysis of evaluation data.

See also items G17 and J35.

3.3 Guidelines on surveys, indicators and data handling

C01 Beaton, G.H. & Bengoa, J.M. Practical population indicators of
1976 and nutrition. In Beaton, G.H. & Bengoa, J.M. eds.
Nutrition in Preventive Medicine. Geneva, *WHO Mono. Ser. no. 62* p500-519 (S241 2 62 NBL)

Discusses the indicators of PEM which are of value when assessing the situation in a community, namely: mortality (age specific 1 - 4 years and 1 - 2 years rates, ratios, proportion deaths under 5 years), birth weight, height at a specific age and age of menarche.

A good overview of the use of these indicators.

C02 Béhar, M. Appraisal of the nutritional status of population groups.
1976 In Beaton, G.H. & Bengoa, J.M. eds. *Nutrition in Preventive Medicine*. Geneva, *WHO Mono. Ser no. 62* p556-575
(S241 2 62 NBL)

Reviews the practical problems associated with nutrition status surveys; gives some guidelines for the planning, implementation, analysis, interpretation and reporting of these surveys; describes in detail a comprehensive survey carried out in six countries in Central America and Panama.

A useful and quite detailed guide to conducting nutrition status surveys.

C03 Blankhart, D.M. Outline for a survey of the feeding and the
1971 nutritional status of children under 3 years of age and their mothers. *J. trop. Pediat. & Environ. Child Hlth* 17 (4):176-186 (NBL)

This paper aims to provide a guide on survey methodology for field workers under minimal supervision. Contents include: purpose, sampling, preparation, organization of survey; collection of data in the home using standard questionnaires; details of how to take pertinent measurements and conduct a dietary recall; hand processing and presentation of data; follow-up by developing a child feeding plan; reference anthropometric values; questionnaire.

A useful outline for a very simple survey. Layout of form not very good and some of the suggested data may be difficult to collect in practice. No allowance made for collecting data on bottle feeding.

*C04 Brown, J.E. & Brown, R.C. Finding the causes of child malnutrition.
1979 Atlanta, Task Force on World Hunger. 73p (616.39 B81 NBL)

A handbook, written in basic English, which describes, in simple, practical detail, how to measure community nutrition (sampling, measuring AC, W/A and W/H) and how to determine food problems (includes simple questions to be answered) and the problems that should be attacked (with examples of problems and relevant community based plans).

Recommended for field workers collecting data on nutritional status.

*C05 Burgess, H.J.L. & Burgess, A.P. A field worker's guide to a
1975 nutritional status survey. *Am. J. clin. Nutr.* 28:1299-1321
(NBL)

This guide provides the busy medical worker in a developing country with the information needed to prepare, conduct, analyse and report a simple survey aimed at assessing the nutritional status of young children and at indicating which characteristics are associated with malnutrition. It includes: description of the baseline data, sampling procedures, recording form, staff, facilities, field organization, analysis methods and reportage needed for a simple nutritional status survey; details of the procedures for taking anthropometric measurements and laboratory samples, for clinical examination, for coding and for planning output data tables.

Detailed and practical information on data collection and analysis suitable for conditions in developing countries. Some indicators are now out-dated. Information on how to use data in programme evaluation is not included.

C06 Burk, M.C. & Pao, E.M. Methodology for large scale surveys of house-
1976 hold and individual diets. USDA, Home Economics Research
Report no. 40 88p (S 73 488 no. 40 NBL)

Provides planners with the technical data needed to choose appropriate procedures for large scale food consumption surveys and includes: concepts of 'food consumption'; description of alternative procedures for assessing consumption and their evaluation in terms of reliability; validity, cost and work burden; extensive bibliography.

Important review of the alternative methods that can be used to estimate food consumption. Little practical detail on how to carry out the procedures. Most relevant to communities on a market economy.

See also Reddy, S. 1968. Practical problems with obtaining valid and reliable information on household food utilization. *J. trop. Pediat. & Environ. Child Hlth* 14 (2):66-70 (LIB)

CO7 Christakis, G. ed. Nutritional assessment in health programs.
1973 Reprint from *Am. J. publ. Hlth 63* 82p (612.39 C46 NBL)

Gives guidelines for the assessment of community nutritional status for public health workers in the USA. Includes: methods for assessing dietary intake (food accounts, records, lists, recall) and nutritional status using community indicators (socio-economic and demographic data, health statistics, local resources and social programmes), clinical indicators including anthropometry, and laboratory tests; nutritional assessment of infants, children, adolescents, mothers, adults and the elderly; glossary of nutritional terms; US recommended dietary allowances.

Although prepared for USA, and therefore including some data irrelevant to developing countries, this report brings together many of the methods used in nutritional assessment. It gives quite detailed instructions for carrying out many of the procedures and is one of the few documents that covers adolescents and the elderly.

CO8 DeMaeyer, E.M., Lowenstein, F.W. & Thilly, C.H. Technique of
1979 endemic goitre surveys. In *The control of endemic goitre.*
p73-83 WHO, Geneva (F) (S) (S.B. 3b NBL)

Describes how to examine and classify goitre, how to organize a survey, select the sample and present the results.

Important for those evaluating goitre interventions.

*CO9 den Hartog, A.P. & van Staveren, W.A. Field guide on food habits
1979 and food consumption: a practical introduction to social surveys on food and nutrition in 3rd world communities. Revised ed. Wageningen. *ICFSN Nutr. papers no.* 1 105p
(492 15 NBL)

Guidelines for collecting information on food habits and food consumption for nutritionists and home economists in the Third World.

Contents include: a discussion on food habits and food consumption patterns; details on how to carry out field studies including sampling; how to collect, analyse and present data on food habits and food consumption (food balance sheets, family and individual surveys using recall of past intake or measuring present intake); sample questionnaires and recording forms; reading list on food habits.

A useful, practical and quite detailed guide suitable for professional field workers.

C10 Evers, S. & McIntosh, W.A. Social indicators of human nutrition:
1977 measures of nutritional status. *Soc. Indic. Res.* 4(2):185-205
(from abstract in *Nutr. Plann.* 1(3) no. 335)

A review of indicators of nutritional status, their precision, reliability, validity, cost and technical feasibility. Compares the indicators obtained by direct methods (dietary surveys, anthropometric and clinical assessment, biochemical tests and age of menarche) with those from indirect methods (vital statistics, morbidity rates and birth weights). Lists social indicators which help to locate high-risk groups.

*C11 FAO. Manual on household food consumption surveys. Reh, E.
1962 Rome, *FAO Nutr. Studies* no. 18 96p (F) (S) (S238 2 18 NBL)

Provides guidelines for planning, implementing and evaluating food consumption surveys in developing countries, the results of which will be used in nutrition planning and education. Contents include: organization, planning, training, equipment, supplies and statistical techniques required for food consumption surveys; guidelines on how to collect data on food prices, food supplies, food preparation and food consumed by the household; analysis and evaluation of data and their application to nutrition programmes.

A basic text, which has been field tested, for those planning food consumption surveys in developing countries. Although a few details need up-dating this may be recommended as a very useful guide on the topic.

C12 FAO. Proposal for a nutrition module for inclusion in household
1978 surveys. 5p (S.B 2h NBL)

Describes a simple module for determining child nutritional status (using W/H, H/A, and W/A indicators) that can be inserted into household surveys.

C13 FAO. Social indicators and social statistics in the context of
1978 FAO's concerns. Baster N. ESS/MISC/78-5 65p
(311.3 B29 LIB)

Proposes a conceptual framework for a programme of work on social indicators and social statistics which includes those related to food consumption and nutrition and which takes into account recent UN work on social statistics and the system of Social and Demographic Statistics. Emphasis is placed on the development of more disaggregated data. The data requirements of linking food and agricultural policies with the objectives of increasing productivity and incomes of small farmers is discussed.

A useful background paper particularly for those concerned with agricultural and rural development.

See also FAO 1979, A systematic approach to social indicators within FAO's concerns. Statistics Advisory Committee of Experts, 8th Session. Rome, FAO ESS:SAC/79/3. A paper based largely on item C13.

C14 FAO. UN Joint Inspection Unit report on glossary of evaluation
1979 terms. (JIU/REP/78/5). Sohn E.D. FAO Council paper CL 75/6
35p (A) (C) (F) (S) (LIB)

Gives a glossary of 24 basic terms used in evaluation activities within the UN system.

A basic document for UN personnel evaluating programmes and projects.

C15 FAO. Analysis of food consumption survey data. Burk, M.C.
1980 *Fd & Nutr. paper* no. 16 (F) (S) (S238 9 NBL)

Gives detailed guidelines for analysing and using food consumption data. Contents include: uses of food consumption data; preparation of raw data for analysis; evaluation of sampling; variations in measures of food consumption; comparison of household food data with that from food balance sheets, individual dietary and nutritional status and food expenditure surveys; multivariate analysis; interpretations and use of measures of statistical relationships; individual food intakes; technical problems; key questions to guide analysis; computer programmes.

Designed for a broad readership, since it covers both the simplest and most sophisticated concepts of data analysis. An important document for those dealing with large amounts of food consumption data.

C16 FAO. Socio-economic indicators for monitoring and evaluating
1980 agrarian reform and rural development. Draft. ESS/MISC/80-7
(LIB)

A draft list of 55 socio-economic indicators to assist countries monitor and evaluate progress towards agrarian reform and rural development. These include three with which to monitor nutrition (i.e. per capita calorie consumption, percent of undernourished population, percent of 1 - 5 year olds who are less than 80% W/A and W/H and 90% H/A). Each indicator is described and levels of disaggregation and sources of data suggested. A separate document containing only 23 'core' indicators has been issued (see below).

A useful document for evaluators. It is interesting that the anthropometric indicators proposed are based on 'percents' of standard or reference rather than 'percentiles' or 'standard deviation scores'.

See also 'FAO 1980 Core Socio-economic indicators for monitoring and evaluation of agrarian reform and rural development'. Draft ESS/MISC/80-6. (LIB).

C17 COAG/FAO. Introducing nutrition in agricultural and rural development.
1981 COAG 81/6 24p (NBL)

The paper includes: guidelines for introduction of nutritional considerations; case study experiences (in Haiti, Kenya, Peru, Philippines, Sri Lanka and Zambia) in application of the guidelines (see item FAO C21); identification of appropriate nutrition interventions as project components; selection and introduction of environmental components; further development and application of guidelines; checklist of activities in the guidelines.

C18 FAO. Programme for statistics of food consumption and nutrition,
1981 Rome. 72p (F) (339.4 F731 NBL)

Provides up-dated methods for compiling food consumption and nutrition statistics. Contents include sources of statistics for food consumption and nutrition, and guidelines for the planning and conduct of food consumption and nutrition surveys.

Gives a good review of the concepts of nutrition surveys, particularly food consumption surveys but is not a manual that can be used by field workers.

C19 FAO. Nutritional considerations in agricultural and rural development
1982 projects. M. Burk (Nutrition Division, under preparation).

Includes methodology for assessing the impact of development projects on nutrition.

C20 FAO. Manual on nutrition survey methods for development projects.
1982 Pd & Nutr. paper (under preparation) (NBL)

Describes a survey methodology which is geared towards planning for effective project design and nutrition components from the inception of a rural development project, and which also allows planners to identify groups requiring particular attention.

C21 FAO. Six case studies on introducing nutrition into agricultural
1982 and rural development projects (Nutrition Division, under preparation)

Describes six case studies in Haiti, Kenya, Peru, Philippines, Sri Lanka and Zambia in which the methodology for introducing nutritional considerations into development projects was tested.

See items C19 and C20.

C22 Flores, M. & Sogenderes, L. A guide for the dietary evaluation of
1976 preschool children in the health centre. *J. trop. Pediat. & Environ. Child Hlth* 22 (6):277-280 (NBL)

Describes how to interview mothers in order to obtain a reliable 24-hour recall of the foods consumed by a young child. Designed to be used by regular health centre staff and based on experience in Latin America.

A simple but quite useful guide.

C23 Garby, L. & Yeo, G. Interpretation of results of supplementation trials
1978 *Am. J. clin. Nutr.* 31 (9):1515-1518 (NBL)

Gives methods for reducing regression towards the mean effects in supplementation trials and an interpretation of the results in terms of frequencies and magnitudes of responses to the supplementation.

Useful for those analysing evaluation data.

C24 Habicht, J.-P. Some characteristics of indicators of nutritional status
1980 for use in screening and surveillance. *Am. J. clin. Nutr.* 33 (3):531-535 (NBL)

A useful discussion of the various factors to consider in choosing appropriate indicators of nutritional status.

See Trowbridge, F.L. & Staehling, N. 1981. Response to Habicht editorial *Am. J. clin. Nutr.* 34 (3):438-439

C25 Hedley, D.D. & Rodhe, J.E. The analysis of the results of supplementary
1978 feeding trials: an approach based on the evaluation of Swedish emergency foods during the famine in Mauritania. *Disasters* 2 (4):259-264 (LIB)

Describes a method by which the weight data collected before and after two months emergency feeding of preschoolers of different ages, different initial nutritional status and different number of days feeding can be used to evaluate the most effective feeding intervention.

Of interest to those concerned with evaluation of emergency feeding.

C26 Horner, M.R., Dorea, J.G. & Johnson, N.E. A semi-automatic method
1980 for the dietary evaluation of food intake data. *Cajanus* 13 (3):139-145 (NBL)

Describes a method of evaluating the nutrient content of families on a diet of limited variety using a calculator with a memory and printing capabilities.

A useful method for thos who have no access to computer facilities.

C27 Jelliffe, D.B. & Jelliffe, E.F.P. eds *Nutrition and growth*
1979 Vol. 2 of *Human nutrition: a comprehensive treatise*
New York, Plenum Press. 452p (612 F 181 NBL)

Contains sections on growth monitoring and nutritional assessment (reference data, clinic assessment, anthropometric field methods and criteria for their selection, presentation of data, nutritional surveillance).

A useful book that brings together a lot of up-to-date information.

C28 Lörsted, M. Survey manual: nutritional effect survey, ARE 535.
1978 Decision Data AB (Restricted) 28p (Egypt C.B. NBL)

The methodology used by local staff in carrying out the nutritional effect survey for project ARE 535 'Development and settlement on newly reclaimed lands' in Egypt (see item K04) is described. Detailed instructions are given for interviewing and for completing the 6-page questionnaire on household characteristics, food habits, food expenditure, and child nutritional status. A system for ensuring the data are complete is given as well as instructions for coding and for transferring data to computer tape in the field.

Although the manual is specific to the Decision Data methodology, it does give guidelines, especially in the area of data control, which would be useful for those developing similar evaluation systems.

See also *Fd Nutr. (FAO)* 6(2) 1980.

C29 Martorell, R., Klein, R.E., Delgado, H. Improved nutrition and its
1980 effect on anthropometric indicators of nutritional status.
Nutr. Rep. Int. 21(2):219-320 (NBL)

Comparisons were made of the various anthropometric indices of two groups of Guatemalan children who were followed from birth to three years. The children were from areas where supplements containing either 163 kcals and 11.5 g protein or 59 kcals were available. It was concluded that the most appropriate measures for evaluating the nutritional impact of long-term nutrition/health interventions were supine length, arm length, and weight. Arm circumference and W/H were useful in identifying current severe malnutrition but not for evaluating the effectiveness of interventions.

Useful information for those evaluating long-term interventions.

See also item I08.

C30 Miller, D.C., Nichaman, M.Z. & Lane, J.M. Simplified field assess-
1977 ment of nutritional status in early childhood: practical
suggestions for developing countries. *Bull. Wld Hlth Org.*
55 (1):79-86 (NBL)

Describes, in rather general terms, a simple field method to determine the magnitude and geographical extent of PEM and anaemia in young children. Contents include: sample selection; assessment of nutritional status using key indicators from mothers and young children (anthropometric, clinical and laboratory); ensuring measurement accuracy; survey logistics; data handling.

Greater detail of the survey procedures would make the guidelines more useful in the field.

*C31 Nabarro, D. & McNab, S. A simple new technique for identifying thin
1980 children. *J. trop. Med. Hyg.* 83:21-33 (LIB)

Describes a wall chart which enables health workers to easily identify children of low weight-for-height.

The technique is likely to prove to be a useful new tool in identifying malnourished young children. Is being field tested.

C32 Naidu, A., Rao N. & Rao, D.H. Efficacy of various anthropometric
1979 indices in the evaluation of supplementary feeding programmes.
In *Demographic and socio-economic aspects of the child in India* ed Srinivasan, K., Saxena, P.C. & Kanitkar, T. Bombay,
Himalaya Publ. House p383-388 (from reference in Nat. Instit.
Nutr. Hyderabad Annual Report, 1980).

No details available.

C33 Pinstrup-Anderson, P., de Londono, N.R. & Hoover, E. The impact of
1976 increasing food supply on human nutrition : implications for
commodity priorities in agricultural research and policy.
Am. J. Agric. Econ. 58:131-142 (LIB)

A model, based on neoclassical demand theory, is developed to estimate the nutritional implications of alternative commodity priorities in agricultural research and policy. The model estimates the distribution of supply increases among consumer groups, the related adjustments in total food consumption and implications for calorie and protein nutrition. The model was used in a study in Cali, Colombia (see item O08).

A useful methodology for helping to establish the impact of increases in food supply on nutritional status.

C34 Schofield, S. *Development and problems of village nutrition*
1979 London, Croom Helm with I.D.S. Sussex 174p
(612.39 Sch 6 NBL)

Included in the contents are methods for collecting nutrition data and measuring nutritional status, and approaches for identifying types of nutritional problems at the micro level (which are described and evaluated). The methods discussed include food balance sheets, economic and food consumption surveys of different types, medical surveys and anthropometric and mortality data. The frequency with which these methods have been used in surveys and the criteria used to determine the method chosen are reviewed. The author points out that the intended use of the data collected has rarely been specified. Most surveys measure the scope of the problem but do not evaluate what types of improvement programme would be most relevant.

It is concluded that: the data from food consumption surveys cannot be interpreted without other data on disease incidence, work requirements etc. Because of their lack of policy orientation, the author feels that the high cost of most surveys cannot be justified and that nutritionists and social scientists should collaborate and devise alternative ways of measuring nutritional problems, costed in relation to data accuracy and the needs of planners. Approaches to village surveys which are systematic and which identify causes as well as symptoms of malnutrition are suggested.

Although not concerned specifically with evaluation, many of the points made in this in-depth study should be useful to those planning and evaluating village level interventions.

C35 Schwab, G. ed. Evaluation handbook 2nd ed. Washington, D.C. USAID
1976 (from abstract in *Nutr. Plann.* 2 (4) no. 812).

Discusses issues and methodologies in relation to USAID programmes.

C36 Sen Gupta, P.N. Household Food Consumption surveys : value in
1978 effective nutrition programme. Swasth Hind 22 (8):178-182
(Nutr. Plann. Doc. no 1216. India C.B. NBL)

Discusses the value and methodology of food consumption surveys and their use in nutrition programming and evaluation.

Probably of limited relevance outside India.

C37 Sommar, A. et al. History of night blindness : a simple tool for
1980 xerophthalmia screening. *Amer. J. clin. Nutr.* 33 (4):887-891
(NBL)

In a sample of 5 925 of preschool-age children in Java, the correlations between a history of night blindness, Bitot's spots with xerosis, and serum vitamin A levels were examined. It was concluded that a properly elicited history of night blindness in places where there is a well known local name for the condition can be almost as specific and far more sensitive an index of vitamin A deficiency and early xerophthalmia, than the presence of Bitot's spots.

The experiment on which this conclusion is based appears to be well designed and implemented and the result may be a useful tool in estimating the prevalence of vitamin A deficiency in some areas.

See item C45.

C38 Trowbridge, F.L. & Staahling, N. Sensitivity and specificity of arm
1980 circumference indicators in identifying malnourished children
Am. J. clin. Nutr. 33:687-696 (NBL)

Using sensitivity-specificity analysis it was found that simple arm circumference gave similar results to AC for age and better than AC for height (using % W/A as a indicator of malnutrition). All three gave similar results in identifying children with low % W/H.

A useful paper for those selecting indicators of malnutrition.

See also *Am. J. clin. Nutr.* 34 (11):2591-2599.

C39 UN. The revised UN handbook on household surveys (in press).
1980 New York, United Nations. (Index NBL)

Includes a chapter on methods of conducting food consumption surveys as part of a national household survey (see item C40).

C40 UN. National household survey capability programme: prospectus
1980 New York, United Nations, Statistics Office Doc. DP/UN/INT-79-
020/1. (Statistics Branch Library, FAO)

The objective of the programme is to assist developing countries establish machinery for continuous household surveys covering a wide range of economic and social data including nutrition.

Also described in *Fd Nutr. (FAO)* 5 (1):34-35 1979 (NBL)

C41 UNESCO. The use of socio-economic indicators in development planning.
1976 Paris, UNESCO Press 282p (338.26 Un31 (E) LIB)

Contents include the construction and use of social indicators (including health indicators) with examples from some countries.

Of limited relevance to nutrition evaluation.

C42 UNITAR. Criteria and methods of evaluation: problems and
1969 approaches. *UNITAR Ser.* 1 160p (Index NBL)

Discusses the principal problems in the planning and management of development projects and suggests tools of analysis to provide the decision maker with a reliable information base.

Limited relevance.

C43 USAID. Evaluation handbook. 2nd ed.
1972 (65 Ag31 LIB)

A manual, written in fairly simple language, for evaluating all types of AID programmes. Gives guidelines on evaluation design, analysis, interpretation, costs, selection of evaluators and consultants, and reporting.

Mainly useful for USAID programmes.

C44 USDA. Evaluating the nutrition and health benefits of the special
1977 supplemental food program for women, infants and children (WIC) Advisory Committee on Nutrition Evaluation, Food and Nutrition Service. Washington, D.C. US Govt. Printing Office 93p (612.39 F 734 NBL)

Describes the objectives, scope, methodology, application, limitations, equipment, expertise, time and budget required for four types of nutrition evaluations of WIC take-home feeding programmes. These are: evaluation using existing data; nutritional surveillance; in-depth evaluation of nutrition and health status; nutrition status of recipients and non-recipients.

The discussion on the first two types of evaluation and on the proposed indicators and reference values may be useful to those evaluating other nutrition programmes.

*C45 Vijayaraghavan, K. et al. A simple method to evaluate the massive
1975 dose program in preschool children. *Amer. J. clin. Nutr.* 28:1189-1193 (LIB)

A simple methodology for evaluating impact on occular signs of a large scale massive dose vitamin A prophylaxis programme in India is described. Because of the difficulties of obtaining baseline data, this method makes use of the linear relationship which exists between age and prevalence of Bitot's spots. Significant differences in regression coefficients existed between control and experimental areas. It is suggested that evaluation of these programmes be done against a null hypothesis $\beta = 0.0065$.

A useful paper for those concerned with large scale massive dose programmes, although the time taken to estimate age correctly must be a constraint in some areas.

See items N19 and N22.

*C46 Waterlow, J.C. et al. The presentation and use of height and weight
1978 data for comparing the nutritional status of children under the age of 10 years. *Wld Hlth Org. Bull.* 55 (4):489-498
(NBL & LIB)

Suggests methods for analysing and classifying anthropometric data (particularly W/H and H/A) that allow acute and chronic malnutrition to be distinguished. Recommends using recent US data as international anthropometric references and centiles and 'standard deviation scores' as cut-off points for classifying measurements.

This is an important paper because it presents the opinion of leading experts. Some parts of the paper are quite difficult to follow and only experience will show whether expression of measurements in terms of 'standard deviation scores' or centiles instead of 'percents of standard' will prove practical in the field.

C47 WFP. The approach to evaluation of WFP development aid:
1974 participation of FAO. WFP/IGC 25/12 Add. 1 14p (F) (S)
(WFP box NBL)

Describes the type of evaluation of WFP-assisted projects carried out by FAO which includes assessment of impact of food aid on nutrition and health.

*C48 WHO. The assessment of the nutritional status of the community.
1966 Jelliffe, D.B. Geneva, *WHO Mono. Ser no.* 53 271p (F)(R)(S)
(S241 2 53 NBL)

Provides field workers with a standardized, practical method of conducting and analysing surveys designed to assess the type and extent of malnutrition in the community. Includes: detailed description of the clinical signs of malnutrition; procedures for measuring and interpreting anthropometric measurements, for collecting and analysing samples for biochemical tests and for carrying out biophysical measurements; indirect nutritional assessment using mortality and morbidity rates; assessment of related ecological factors and conditioning infections; characteristics of different types of nutrition surveys; planning, field work, analysis, interpretation of nutrition surveys; special problems of different community groups; reference anthropometric standards.

A basic text that has proved very practical and can be recommended for those collecting and interpreting data on nutritional status. Some of the indicators are now out-dated and new anthropometric reference values have been recommended (see item B06). Information on how to use data in programme evaluation is not included.

C49 WHO. Methodology of nutritional surveillance. Report of a
1976 joint FAO/UNICEF/WHO expert committee. Geneva, *WHO Tech. Rep.*
Ser. no. 593, 66p (F) (S) (S241 1 593 NBL)

The purpose of the report is to provide guidelines on the nature of a surveillance system, on the methods for setting it up and on the principles for its operation. Contents include: objectives and definition of nutritional surveillance; description of factors influencing nutritional status; characteristics, sources and choice of indicators; examples of indicators based on agricultural, socio-economic, health and dietary data; surveillance systems including data collection; needs for further research.

The discussion on indicators and data collection would be useful to those planning nutritional evaluation.

C50 WHO. Assessing health workers' performance : a manual for training
1980 and supervision. Katz, F.M. & Snow, R. *Public health
papers* no. 72 173p (S241 3 LIB)

Intended for those designing, conducting or evaluating training programmes. The book introduces some alternative approaches to performance assessment and describes the main considerations in adopting any assessment strategy.

Useful guidelines although not specifically designed for nutrition training.

C51 WHO Western Pacific Regional Office. *The health aspects of food and*
1979 *nutrition.* 3rd ed. Manila, p169-233 (612.39 (9) W89 NBL)

Nutritional surveillance, nutrition and food consumption surveys, and anthropometric indicators are discussed in detail. Anthropometric procedures, equipment lists and reference values are given, as well as survey forms and guidelines on estimating nutritional adequacy and cost of household diets.

A useful book for professional field staff particularly those in S.E. Asia and the Pacific Region.

C52 World Bank. Confronting urban malnutrition. Austin, J.E.
1980 *World Bank Occasional Papers* no. 28 p87-101 (S 2186 5 NBL)

Describes in some detail how to analyse the financial aspects of nutrition interventions (costing methods; leakage; balance of payments and fiscal implications) and cost effectiveness (users of information; indicators of operating output efficiency, biological cost effectiveness and cost benefit ratio).

A useful overview.

4. EVALUATIONS OF DIFFERENT TYPES OF PROGRAMMES AND SERVICES : ANNOTATED BIBLIOGRAPHY

4.1 Reviews

*D01 Anderson, M.A. et al. Supplementary feeding: Study I of
1981 Nutrition interventions in developing countries Ed. Austin,
J.E. & Zeitlin, M.F. Cambridge, Mass., Oelgeschleger,
Gunn & Hein. for USAID 213p (612.39 Au711 Suppl NBL)

Part of a manual (see item D04) intended to provide guidance on selecting interventions for preventing malnutrition in the preschool child. In this study, the nature, organization and intervention design (including community involvement, participant selection, food type and quantity, time dimension, location, facilities and logistics and control) of on-site, take-home and NRC supplementary feeding programmes are described and the literature from 200 programmes (see item D03) are reviewed.

In the chapter on intervention evaluation, the results from these programmes are discussed under the headings: costs, supplementation effects on growth, deficiency signs, pregnancy outcome, morbidity and mortality, cost-effectiveness. The authors conclude that supplemental feeding is most effective in terms of improving growth when given in NRC and to low weight children. Supplemental feeding during pregnancy can improve birth weights. The effect on morbidity and mortality is not clear. The CARE evaluation study is described and examined in detail (see item J02).

A detailed and useful overview of the effects of several programmes, most of which have a strong US input. This study complements that of Beaton and Ghassemi (see item D05) which, however, is not mentioned.

D02 Austin, J. et al. Annotated directory of nutrition programs in
1978 developing countries. Cambridge, Mass., H.I.I.D. for SCN
250p (612.39 Au71 NBL)

Gives, in tabular form, brief details of 201 nutrition programmes gathered through a mail survey. Large scale government programmes are under-represented. 57% indicated the availability of some evaluation data, including nutritional status of target groups. 29% had programme cost data. Contact addresses are given for those who need more information.

See item D03.

D03 Austin, J. et al. Nutrition intervention assessment and guidelines.
1978 Cambridge, Mass., H.I.I.D. for SCN 343p (612.39 Au7 NBL)

Gives a detailed description, including data on costs and effectiveness of the following types of interventions: supplementary feeding, nutrition education, formulated foods, fortification, consumer price subsidies, agricultural productivity, integrated interventions. Of the 201 interventions examined only 57% had some evaluation data.

This is a long detailed document with much pertinent information.

See item D02 and A01.

*D04 Austin, J.E. & Zeitlin, M.F. Nutrition intervention in developing
1981 countries. An overview. Cambridge, Mass. Oelgeschlager, Gunn & Hain. For USAID 225p (612.39 Au711 NBL)

The purpose of this book, and its seven supplementary studies (see items D01, E02, G42, N04, O11, P01) is to provide guidance to those planning, designing, funding, operating or evaluating nutrition programmes by providing information on usage, design, costs and effectiveness of various types of interventions. This volume describes a conceptual framework for nutrition interventions and evaluation, and gives an overview (covered in detail in the supplementary studies) of supplementary feeding, nutrition education, fortification, formulated foods, consumer price subsidies, agricultural production and integrated nutrition and health programmes. Detailed bibliographies are given as well as intervention design checklists.

This is an extremely important book for anyone involved with nutrition interventions. A great deal of ground is covered in some depth. Although there tends to be a bias towards US funded programmes, this could be because these are more often evaluated and documented than those which are locally managed. The intervention design checklist could be useful to those planning programmes in developing countries. It would be a good idea if these could be made more widely available as many local workers or libraries will not be able to afford this book. The bibliographies given are very comprehensive. Evolution studies are covered in more detail in the supplementary studies. Unfortunately, these studies are not indexed, and this may limit their use as not many people will have the time to pursue a particular programme through a total of 1400 pages.

*D05 Beaton, G.H. & Ghassemi, H. Supplementary feeding programmes for
1979 young children in developing countries. (mimeo) SCN & UNICEF 87p and *Amer. J. clin. Nutr.* 1982 35 (4): Suppl. (ACC/SCN box. NBL)

By examining over 200 evaluation reports (listed) the authors critically review the results from supplementary feeding programmes for children aged 6 months - 6 years. Distribution systems, potential and measured programme benefits, potential side effects, targeting and coverage and costs are discussed. Programme details, costs, evaluation design and the results of the evaluations are tabulated. The authors conclusions are given in an excellent 32-point summary which has already proved useful to those concerned with planning and evaluating supplementary feeding programmes. The most important of these are that feeding programmes should continue but objectives, channels of distribution and selection of recipients need to be re-examined.

Strongly recommended to all concerned with planning and evaluating supplementary feeding programmes.

For a summary, see *Fd & Nutr. Bull.* (UNU) 3 (2):15-16 (NBL)

D06 Brožek, J., Coursin, D.B. & Read, M.S. Longitudinal studies on the
1977 effects of malnutrition, nutritional supplementation and
behavioural stimulation. *Pan Am. Hlth Org. Bull.*
11 (3):237-249 (LIB)

A report of a conference in Colombia at which longitudinal studies of malnutrition and development were described and discussed. These included investigations into the impact of nutritional supplementation to mothers and preschoolers (sometimes with educational stimulation) on child development in Bogatã and Cali and in Guatemalan and Mexican villages.

A useful overview of the experimental design of these studies. Only tentative results are reported.

D07 Clark, J. Milking Whom? A study of Europe's agricultural sector
1979 and its effects on European and Third World Food Systems
2nd ed. Internat. Coalition for Development Action, Bedford
Chambers, London, W.C. 2E 8HA, UK. 71p (not in FAO)

A critical review of EEC food aid and its role in Operation Flood.

See item R06.

*D08 Dobbing, J. ed. *Maternal nutrition in pregnancy - eating for two?*
1981 London, Academic Press. 197p (613 D65 NBL)

This book is the outcome of a workshop which critically examined major intervention studies on maternal nutrition and pregnancy outcome. These included studies carried out in Holland during the 2nd World War and more recently, in Bogotã (item J09), Guatemala (item I07), India, Mexico (item I01), Montreal, New York (item J30), Taiwan, England, Paris and the United States. There was a considerable divergence of opinion on the interpretation of the results of these studies and the editor does not attempt to draw conclusions.

An important book for all those who are interested in examining maternal intervention studies in depth.

*D09 Drake, W.D., Miller, R.I. & Humphrey, M.S.W. Project on analysis
1980 of community level nutrition programs. Vol. I. Final report : analysis of community-level nutrition programs. Ann Arbor, Mich., Community Systems Foundation. For USAID 171p
(Nutr. Plann. Doc. no. 1426 612.39 P945 NBL)

For details see item A04. In the short section which discusses the impact of various elements of nutrition interventions, it is concluded that: food supplements do not substantially affect malnutrition but they do act as an incentive for programmes with indirect nutritional effects; the minimizing of diseases that have a synergistic relationship with malnutrition and the use of the growth chart have positive but hard to quantify effects; nutrition and hygiene education may be an important catalyst in any intervention.

Although only seven projects of very different types were examined in depth, the data from each were extensive and subjected to exhaustive analysis.

See items A04, E08, E10, E13 and E20.

D10 Griffin, P. The impact of food aid - Peru, a case study.
1979 *Food Policy* 4(1):46-52 (NBL)

The impact of food aid on Peru during 1972-76 is discussed in detail. Programme aid, from the EEC and Belgium, consisted mainly of cereals which were sold; the funds generated being used for development work. Project aid consisted of WFP food as well as food from voluntary agencies. Projects included food-for-work, mother-child feeding and school feeding.

The author concludes that food-for-work projects resulted in useful infrastructural development and that supplementary feeding increased clinic and school attendance and, to some extent, nutritional status.

A useful overview of food aid programmes in Peru.

*D11 Gwatkin, D.R., Wilcox, J.R. & Wray, J.D. Can health and nutrition
1979 interventions make a difference? Overseas Development Council monogr. 13 60p
(S.B. 41 NBL)

The impacts on infant and child mortality of 10 'field experiments' with health, nutrition and/or family planning inputs are examined. These included supplementary feeding trials in Guatemala (item I07), comprehensive care for children in Imesi, Nigeria, medical care and family planning in Turkey, the Indian Narangwal project (item E27) and Jamkhed project (item E01), supplementation in Peru (item K01), nutritional surveillance and education in Jamaica (item G02) and a health service and education project in Kavat, Iran.

Components considered contributory to effectiveness were: maternal nutrition and tetanus immunization, nutrition monitoring, wide population coverage, use of paramedics, good training and administration. Flaws and problems in evaluation methodology are discussed and it is pointed out that interventions may threaten village power and social structures and decrease self reliance. Conclusions are, however.

that under 'able investigators, and in populations of 60 000-70 000, mortality can be reduced at a cost of less than 2% per capita income', and that the need is to 'move effectively' to larger service programmes in which experimental and evaluation mechanisms are incorporated.

Several pertinent issues, relevant in programme evaluation, are raised although there is little discussion of child supplementation (often a major programme input). Several important interventions (eg. Poshak item E02) are excluded because information on mortality was the main criterion for selection.

For a critical comment, see 1980 *Nutr. Plann.* 3(2):xv-xix and 3(3):xv-xvii (NBL)

This study is also reported in Berg, A. 1981, Malnourished people: a policy view. Poverty and Basic Needs series, World Bank.

D12 Habicht, J.-P. & Butz, W.P. Measurement of health and nutrition
1978 effects of large scale nutrition intervention projects.
In Klein, R.E. et al. eds. *Evaluating the impact of nutrition and health programs.* New York, Plenum Press p133-182
(612.39 P19 NBL)

The results of nine (items I05, I07, I13, J04, J29 and K01) nutrition interventions are analysed and discussed in terms of the indicators used. In several projects, data for adequate interpretation of results were lacking and no account was taken of non-programme variables, 'substitution' or the intrinsic variability of indicators.

Recommended to those interpreting evaluation results.

See item A06.

D13 Jackson, T. Food aid : the case of Haiti. *Food Monitor* 10:8-10
1979 (C:B: NBL)

Food aid distributed by CARE, CRS, WFP and other agencies is mainly sold. This means that local prices are depressed and the nutritional status of the needy is not improved.

A subjective survey which nevertheless highlights some of the disadvantages of food aid.

*D14 Kielmann, A.A., Ajello, C.A. & Kielmann, N.S. Evaluation of
1980 nutrition intervention projects. Office of Nutrition, USAID Washington. TA/PPU/EU1 (NBL)

The aim of this review was to critically evaluate nutrition interventions and provide guidelines for the design and evaluation of future programmes. Six interventions were examined in depth.

These were the INCAP maternal nutrition supplement project (item 107), the Narangwal nutrition project (item E27), the Hanover nutrition intervention (item G02), a vitamin A high dose supplementation in Bengal (pages on this are missing), a corn fortification field demonstration model (item N28), and the Companiganj nutrition programme (item E06). The interventions were chosen because of availability of data, because they covared saveral types of interventions and because the emphasis was primarily on research efforts. Data were collected from reports and site visits, and then assessed according to planned criteria. In spite of problams in evaluation design (e.g. selection of controls, non-programme variables), the authors conclude that nutrition interventions can have a significant beneficial effect on the health of children aged 0-4 years but that much can be done to improve the mathodological framawork in which the interventions are studied. Criteria for determining a significant affect on health are given.

Although only 6 widely varying interventions are covered, this report does examine them critically and so will be of interest to those planning and evaluating interventions.

D15 Lal, S., Joshi, V.S., Madan, S.B. Viewing the thrae on-going
1978 intervention programmes - natural experiments for preschool children. *Indian Pediat.* 15 (9):781-783 (India C.B. NBL)

Describes 3 nutrition intervention programmes in the State of Haryana and evaluated their impact on nutritional and immunization status of young children. The programmes were: the Special Nutrition Programme (SNP) in which children received (? on-site) rations (200-300 kcal and 8-12 g protein) - 800 children (10% of the beneficiaries) were studied; the SNP plus medical plus immunization programme (SNP+MC+I) and the applied nutrition programme (ANP) in which family planning dominated other activities.

The percentage of children in each W/A category were compared as well as the percentage who had been immunized (BCG, DPT, polio, smallpox). The nutritional and immunization status were best in the (SNP+MC+I) programme, and worst in the ANP programme. These differences were said to be significant.

It is not possible to know if these results are valid as practically no details are given of the evaluation design (i.e. numbers and details of those examined, period of examination, procedures used) or of how the sample was selected.

D16 Lappé, F.M., Collins, J & Kinley, D. *Aid as obstacle : twenty*
1980 *questions about our foreign aid and the hungry.*
Institute for Food and Development Policy, San Francisco,
Calif. 189p (341.2 L31 NBL)

This book examines the United States foreign aid programmes and concludes that most of it: goes to countries of strategic importance to the USA; helps maintain in power repressive or undemocratic governments; does not reach the poor and needy. A substantial part of the book is devoted to examining the impact of US food aid, particularly PL 480 Title I & III. The relative benefits to the US farmers, corporate companies, third world governments and farmers, and the poor and hungry are discussed. The authors feel that food aid is often harmful since it may discourage local production, create a demand for foreign foods and concentrate more power and wealth in the hands of the elite. They consider that the best way of aiding the hungry is to help the poor to control their resources (i.e. the land and its products) and gain more political and economic power

Many people with experience of food aid will not agree with all the authors' conclusions or recommendations. However, for those concerned with aid programmes, this is a book which will be of interest.

D17 Lechtig, A. et al. Influence of maternal nutrition on birth weight.
1975 *Am. J. clin. Nutr.* 28 (11):1223-1233) (NBL)

Using the results of several experimental studies, the authors conclude that the relative contribution of maternal supplementary energy and protein to improved birth weight depends on the home diet, activity, disease and nutrient stores of the mother. Nutrition intervention at any time during pregnancy is probably equally efficient as maternal stores will be improved. Prepregnancy supplementation may be necessary to prevent low birth weights if the mother is very malnourished.

A good summary of the topic.

See D14, D18, I07 and I08.

*D18 Lechtig, A. et al. Effects of maternal nutrition on infant health:
1979 implications for action. *Arch. Latinoamericanos de Nutrición* 29 (4) Suppl. 1 (NBL)

A review of eight intervention programmes demonstrated increased birth weight with supplementation during pregnancy. Other effects of maternal supplementation included a reduction of infant mortality, improved visual habituation and psychomotor development in infants, and improved foetal and infant growth.

An important review of this subject.

See items D17, D26, I01, I07, J21, J22, J30 and J37.

D19 Levinson, F.J. Toward success in combating malnutrition : an
1982 assessment of what works. ACC-SCN Doc. no. 82/20 45p
(ACC/SCN box NBL)

A review of successful or near-successful nutrition activities whose purpose was to assist governments and agencies assess the potential of similar activities in combating malnutrition. The interventions were chosen because they represented different types of programme, were large-scale, had not been analysed in recent reviews and because the author was able to visit them to supplement reported data. The activities examined were: the Sri Lanka food subsidy programme (item 003); the Bangladesh sorghum programme (item 006); the Palawan integrated area development project; the Lumbung Desa System in Indonesia; the Indonesian family nutrition improvement programme, nutrition education in Morocco (item G15) and sugar fortification in Guatemala (item N18).

The author draws several important conclusions which include: the relatively greater importance of support and commitment than choice or design of the intervention; the greater likelihood of success of community activities if the community is involved, there are complementary inputs and the mother is recognised as a change agent; the small role played by technological transfer; that dependance on imported food has often resulted in more harm than good; that unless a programme is central to the national development pattern, it is likely to have only limited impact on the reduction of hunger and malnutrition. The author also points out that while the World Bank advocates food subsidies, governments pursuing these policies are censured by international financial institutions.

While only a few, and very disparate, interventions are reported in this paper, the conclusions drawn are obviously based, to some extent, on much wider experience and so make a valuable contribution to the recent review literature on evaluation. In the examination of the individual interventions, it is felt that stringent criteria have not always been applied in evaluating the validity of their results. Three of the activities reported had not been objectively evaluated. In one, implementation of the programme had not started and in another the subjective data highlighted programme problems and gave little information to warrant its inclusion as a successful intervention.

D20 Martorell, R. et al. Protein calorie supplementation and post-natal
1976 physical growth : a review of findings from developing
countries. *Arch. Latino-Americanos Nutr.* 26 (2):115-128
(NBL)

Reviews eleven studies of the effects of protein energy supplementation and concludes that supplementation is causally related to improved growth and that the relative importance of the contribution of energy or protein depends on what is lacking in the diet.

A useful review.

*D21 Maxwell, S. Food aid for supplementary feeding programmes : an
1978 analysis. *Food Policy* 3 (4):289-298 (NBL)

Ten feeding programmes for mothers and preschoolers (five on-site, two take-home and three NRC), and four school feeding programmes are reviewed. Significant short-term improvements in nutritional status among recipients had occurred in all but one (take-home) project for mothers and children, but in only one of the school programmes. Long-term impact had been measured in one school programme (where it was significant) and in the NRCs (significant in two). The following pertinent points were made: three projects were 'experiments' with good supervision; one school programme was operating under 'favourable' conditions; in one project, not all the results would stand up to statistical testing; in three, no account was taken of 'drop-outs'. Costs and non-nutritional benefits were also examined. The author concludes that supplementary feeding reaches only a small proportion of the priority groups, that they are largely ineffectual in nutritional terms and are not cost-effective.

An important paper for those evaluating food aid.

D22 Mellor, J.W. Food aid and nutrition. *Amer. J. Agric. Economics*
1980 62 (5):979-983 (LIB)

This IFPRI paper reviews briefly the effects of food aid and market interventions (e.g. ration schemes, food subsidies) on improving nutritional status of low income people. The author concludes that while food aid has the potential of playing a substantial role, in practice it has been inefficient in reaching nutrition-based objectives, partly because it has been poorly targetted, and partly because supplies have not been stable.

A useful overview.

D23 Mitra, A. Making hard choices between cost benefit streams of health
1975 and nutrition programs. *PAG Bull.* 5 (1):36-44 (NBL)

Discusses the relative costs and effectiveness of various health and nutrition interventions.

An interesting paper.

D24 Pines, J.M. Supplementary feeding and cost-effectiveness analysis.
1976 *Cajanus* 9 (1):32-38 (NBL)

Concludes that supplementary feeding, aimed at preventing malnutrition, is cost-effective in communities with high rates of malnutrition.

A brief overview.

D25 Pollitt, E. Early childhood intervention programs in Latin America:
1978 a selected review. New York, Ford Foundation. (from reference
in item D34).

No details available.

D26 Raman, L. Nutrition supplement studies in India. In Effects of
1979 maternal nutrition on infant health: implications for action.
Arch. Latinoamericanos de Nutricion 29 (Suppl. 1):155-166 (NBL)

Describes five interventions in which supplements were given to combat maternal malnutrition, and the evaluation of these interventions. These were: 1) At the National Institute of Nutrition in Hyderabad, healthy pregnant women were hospitalized and fed 2 500 kcal and 60-80g protein daily for 6-10 weeks. Physical activity was reduced. Maternal weight gain and birth weight increased (? compared with controls);
2) At Nikufer hospital, Hyderabad, 37 rural pregnant women were given/day, 60mg iron and ?500mg folate; 39 received the iron and folate plus 500 kcal and 20g protein, and 50 served as controls. The supplements were all consumed and did not substitute for the home diet. Birth weights were improved in the supplemented compared with the unsupplemented group (? significant). For full details see Qurashi, S. et al. 1973, Effect of maternal nutrition supplementation on the birthweight of the newborn. *Indian Pediat.* 10 : 541-544.
3) Energy supplements (? amount) were given to 1 500 undernourished pregnant women in Bombay slums. There appear to have been no controls, but birth weights were said to have increased by 220g. It was not known if the supplement substituted for the home diet; they did not raise energy intake to the recommended requirements.
4) The India Population Project in Karnataka (see items G32 and J28).
5) Work at the National Institute of Nutrition at Hyderabad has indicated that giving 500mg folate increases birth weight.

The author feels that the giving of energy supplements is not always practical and that good antenatal care and prevention of anaemia and vit. B-complex deficiencies can reduce the prevalence of low birth weight and infant mortality and morbidity.

A brief review of these five studies. Too few details are given to comment, but more information could be obtained from the author.

*D27 Sahn, D.E. & Pestronk, R.M. Experiences and methodologies in
1979 nutrition programme evaluation; a literature review.
Ann Arbor, Mich. Community Systems Found. For USAID. 195p
(612.39 Sa 1 NBL)

Evaluation reports from five programme types are abstracted (i.e. nutrition education, supplementary feeding, fortification, planning, multisectoral programmes) emphasis being placed on the methodology rather than outcome. An extensive search for materials was made so a very comprehensive set of abstracts is given. Each abstract is intended to provide sufficient information to planners without them having to refer to the original document. The evaluation exercises of various international and national agencies are reported.

The preponderance of US-assisted projects probably reflects the real situation rather than a bias in the report. A critical assessment of methodology or results would have increased the usefulness of this otherwise excellent and comprehensive review.

See item D29 for up-dated version.

See also items A08 and A09.

*D28 Sahn, D.E. The integrated maternal and child nutrition project
1980 in India : recommendations based on a review of past
experience. Ann Arbor, Mich., Community Systems
Foundation. For USAID 122p
(Nutr. Plann. Doc. no. 1434 C.B. NBL)

This report was prepared as a background document for those planning a USAID-supported Integrated Maternal and Child Nutrition Project in India. It examines large-scale operational programmes and small- scale research and demonstration projects. These programmes included: the Tamil Nadu feeding programme (item J09); the Integrated Child Health Scheme (item E01); the Special Nutrition Programme (items I11, J12, J32); the Indo-Dutch project for child welfare; Project Poshak (item E11); the Narangwal Nutrition study (item E27); the ANP in India (items F11, F09, G09 and I02); nutrition rehabilitation centres (item H09); Integrated Child Development Service (item E14); India Population project (items G32 and J28) and Kasa project (item E23). The aspects of the programmes and projects examined included: participant selection, graduation criteria, food quantity and type, nutrition education, maternal supplementation, training, performance with different combinations of services, community involvements, evaluation and costs.

In the section on evaluation comment is made on the methodologies used. Threats to internal and external validity, evaluation designs used, indicators and data interpretation are discussed. The author concludes that the scientific validity for feeding programmes should be established through small scale research projects before a large-scale programme is undertaken. Impact evaluations would not then be necessary but emphasis placed on project monitoring and delivery of services (i.e. operational or formative evaluation). He emphasises the importance of local participation and the rapid feed back of evaluation data.

This is a well written and quite comprehensive analysis of India's nutrition interventions and will be of interest both to those planning integrated feeding programmes and those evaluating large-scale programmes.

See also item D30.

*D29 Sahn, D.E. & Pestronk, R.M. A review of issues in nutrition
1981 program evaluation. AID Program Evaluation Discussion
paper no. 10. Mich., Ann Arbor, Community Systems
Foundation. 220p (Nutr. Plann. Doc. no. 1768. S73 207 NBL)

An updated version of D27.

See items A08 & A09.

D30 Sahn, D.E., Rogers, B.L. & Nelson, D.P. Assessing the uses of
1981 food aid: P.L. 480 Title II in India. *Ecol. Food Nutr.*
10 (3):153-161 (NBL)

Reports the findings of an assessment of the Food for Peace Program in India in 1979; this program accounted for about half the total US free food transfer in that year. The food was channelled through five US voluntary agencies and was used for maternal and child feeding programmes, school feeding and food-for-work. The assessment was carried out by a 8-member team (led by staff of Community Systems Foundation) using a qualitative rather than a quantitative approach.

Maternal and child health feeding programmes did not generally achieve their intended goals because of leakages due to substitution, sharing and poor targetting, although food did act as an incentive to use health services. School feeding increased enrolment and attendance but had little impact on nutritional status. Some food-for-work programmes created income-generating assets and skills and employed jobless labourers. An important conclusion is that priorities for food should be based on local needs and conditions, and take into account national political as well as humanitarian objectives. The authors point out that Food for Peace supplied only 0.4% of India's food and that, only by promoting education and economic improvements is it likely to have any effect on nutritional status.

This paper gives a good overview of the Food for Peace programme in India and although it was a more subjective than objective study, gives useful insights into the use of food aid.

See item J25.

D31 Singh, S. Impact of government developmental policies and
1980 programmes on food and nutrition sector : India experience
In Santos, W. et al. eds. *Nutrition and food science.*
Vol. 1, New York, Plenum Press. p183-203 (report of 11th
International Nutrition Congress, 1978)
(612 (063) In 8 (1978) NBL)

Reviews the results of the major food and nutrition programmes in India (ie. agricultural production, agrarian reform, food-for-work, project Poshak (item E11), Tamil Nadu Nutritional Rehabilitation Scheme (item H09), Special nutrition programme (I11, J12), CARE studies (item J02) and WFP Project 2206-9. Few details of the impact of these interventions on nutritional status are given but there are some recommendations for improving policy decisions and programme implementation.

Only brief details are given of some of India's many nutritional interventions.

*D32 Stevens, C. *Food aid and the developing world: 4 African case*
1979 *studies.* London, Croom Helm in association with the Overseas
Dev. Instit. 224p (341.2 (6) St 4 LIB)

The arguments for and against supplementary feeding of mothers, preschoolers and school children, and the use of food aid in these programmes are presented using examples and data from Botswana, Lesotho, Tunisia and Upper Volta. A summary of impact results from 11 projects (see item D21) and also from CRS evaluations in Lesotho and Upper Volta are given. Other aspects of food aid (i.e. impact on consumer prices and agricultural production) in supplementary feeding programmes are discussed.

See items E15, E16 and L15.

*D33 Susser, M. Prenatal nutrition, birth weight, and psychological
1981 development : an overview of experiments, quasi-experiments,
and natural experiments in the past decade. *Amer. J. clin.*
Nutr. 34 (4) Suppl. : 784-803 (NBL)

Describes six studies on the effects of prenatal nutrition on foetal growth. Four are trials of maternal supplementation carried out in New York, Guatemala (item D17, D18, I07), Bogotá (item J21) and Taiwan. A study in Montreal and the Dutch famine (1944-46) are also examined. Each study is summarized in table form. It is concluded that, among women at risk of producing low birth weight babies, prenatal dietary supplements can lead to a modest rise in birth weight. The degree of the rise is dependent on the woman's nutritional status. The effect of high protein supplementation and sex-specific sensitivity of intrauterine deficiencies need further investigation. It is also concluded that severe prenatal nutritional deprivation, in the presence of good nutritional and social conditions in the post-natal environment, is unlikely to affect cognitive function in adults. Further studies are needed where there is chronic post-natal malnutrition.

A very useful review of the subject setting out clearly what is known and what are the outstanding questions. This article should be read in conjunction with item D08.

D34 Underwood, B.A. Success or failure of supplementary feeding prog-
1978 rammes as a nutritional intervention. (mimeo). For Proc.
Conference on Nutrition Interventions, Santiago, Chile. 31p
(S.B. 2h NBL)

Contents include: a general overview of supplementary feeding programmes and the justification for them; types; evaluation of their effect in reducing malnutrition in a population; elements critical to their success (i.e. a clear concept of and a commitment to the programme and its objectives by all concerned; a stable and visible administrative structure that allows for coordination with related activities; on-going surveillance to provide feed-back and evaluation; orientation to local needs and conditions; locally managed).

A very useful paper for those planning feeding programmes.

See also items D18, G39, H13 and P03.

*D35 WFP/CFA Food aid policies and programmes: a survey of studies
1978 of food aid. Singer, H.W. WFP/CFA 5/5-C. (Limited
distribution) 69p (A) (F) (S) (WFP box NBL)

A survey of the literature carried out to help 'sharpen food aid priorities and operational guidelines for WFP and bilateral programmes'. Eight, out of eleven supplementary feeding projects, reported a significant positive short-term impact on nutritional status. Assessment of long-term impact in three programmes gave contradictory results. On-site feeding, especially in NRC, was most effective. Several studies gave ambiguous results and Project Poshak (item E11) and Project Mexico 307 (item J42) were used to illustrate evaluation problems. The author concludes that overall impact of programmes has been mixed and even successful programmes are handicapped by drop-outs and the difficulty of sustaining long-term improvement. Nutritional impact of food aid is strongest in projects for mothers and infants, especially where these are targetted, and where there is intensive feeding combined with intensive health and nutrition education. While the nutritional impact of school feeding is unclear, non-nutritional benefits may be important. The report also examines distribution and non-nutritional effects (food production, government policy, labour-intensive works), obstacles to success and criticisms of feeding programmes.

A useful overview although the actual programmes examined are not always identified. A summary is given in Fd Nutr. Bull. (UNU)
2 (3):1-4 1980 (NBL)

D36 World Bank. Economics of supplemental feeding of malnourished
1981 children : leakages, costs, and benefits. Knudson, O. K.
World Bank Staff Working Paper no. 451, Washington. 76p
(S2186 7 NBL)

The paper analyses some of the economic issues involved in supplemental feeding, using interventions in Tamil Nadu, India as examples. The first section examines potential leakages. The second examines entry and exit criteria. A simulation model for estimating the number of beneficiaries and costs under different conditions is given in the third section, while the fourth calculates the costs and benefits using efficiency, social and basic need approaches.

The programmes examined in this study include: the Mid-day Meals programme (item L01), the Special Nutrition programme (items I11, J12, J31), the Balwadias programme, and the Narangwal project (item E27).

The study concludes that: leakages of food, due to substitution and sharing, are high and that income leakages occur if taking a child to a feeding centre displaces work; weight trend criteria can be used for entering and exiting children from a feeding programme; costs and number of beneficiaries are largely dependent on environmental factors (e.g. price and income levels, season, birth rate). From a cost benefit analysis of the Narangwal project it was concluded that: if supplementary feeding results in a 10%

improvement in mortality or adult productivity rates, it is economically justifiable; social benefits increase the rate of return of the opportunity costs; an increase in size of ration may be needed to reduce risk of a poor performance.

This is an important study for those concerned with the economic aspects of supplementary feeding. It should be noted that the data base is only from one state of India. References to the studies examined would have been useful.

D37 World Bank. Malnourished people : a policy view. Poverty and
1981 Basic Needs Ser. Berg, A., Washington. 108p (32 B45 NBL)

This book discusses and reviews various policies for combatting malnutrition including supplementary feeding and food ration and subsidy programmes. Details are given of the Sri Lanka ration programme (item O03). Costs of some activities are assessed.

Although not many specific interventions are examined, this is a well written and useful document for those planning and evaluating nutrition programmes.

See also items: *E02, F07, G34, G39, *G42, H01, *J02, J08, J30, J35, *L09, L15, *N01, N03, *N04, N05, *O11, *O13, *O14 & *P01.

4.2 Integrated health and nutrition interventions

E01 Arole, M. & Arole, R. A comprehensive rural health project in Jamkhed
1975 (India). In Newell, K. ed. *Health by the People* Geneva,
WHO (F) (S) p70-90 (614 N44 NBL)

Describes a community-based health care project, which included the on-site feeding of 'deserving' young children and pregnant women, and which used volunteer village health workers. Infant mortality decreased from 97 to 39/1 000 live births over 5 years (control area 90/1 000).

No details of data collection, or of the socio-economic comparability of the project and control area, are given. Also, it is not possible to know the relative contribution of the many inputs.

For a review, see items D11 and E25.

*E02 Austin, J.E. et al. Integrated nutrition and primary health care
1981 programs. Study VII of Nutrition interventions in developing countries ed. Austin, J.E. & Zeitlin, M.F. Cambridge, Mass. Oelgeschlager, Gunn & Hain. For USAID 255p
(612.39 Au 711 Suppl. NBL)

Part of a manual (see Item D04) intended to provide guidance on selecting interventions for preventing malnutrition in the preschool child. Contents include an overview of these types of programmes and their design (organization, needs, resources, objectives, personnel, service mix, facilities, supplies, equipment and timing). In the chapter on evaluation, the methods of estimating the costs of components (e.g. health, water supply etc.), costs to the consumers and indicators of costs are examined together with cost effectiveness. Suggested measures of effectiveness are listed under operating indicators (e.g. coverage, leakages etc.) and outcome indicators (e.g. cost of closing nutrient gap, of changing degree of malnutrition or mortality and morbidity rates). Results from some of the few integrated programmes that have been evaluated are given. It is concluded that, despite the problems in evaluating programmes of this type, integrated programmes can produce impressive reductions in mortality rates and an increased impact over single component programmes. However, it is difficult to replicate many of these programmes for logistic and political reasons. Studies on the cost and effectiveness of preschool clinics in Ghana and Lesotho are described (see item E03), as well as a study of the administration and organization of village-level integrated projects in Maharashtra, India (see item E22). An extensive list of references is given.

A useful overview of the few evaluation results from integrated programmes. The difficulties of evaluating the relationships between the several programme inputs and impact are well described. This is one of the few studies in which costs to consumers are considered.

Perhaps more emphasis needs to be placed on the fact that, despite their positive effects, virtually none of these integrated interventions have been adopted by governments as national programmes. The reasons for this are only briefly examined.

*E03 Austin, J.E. et al. Case study of the cost and affectivenass of
1981 preschool clinics in Ghana and Lesotho. In Intergrated nutrition and primary health care programs. Study VII of Nutrition interventions in developing countries. Eds. Austin, J.E. & Zeitlin, M.F. Cambridge, Mass. Oelgeschlager, Gunn & Hain. p97-138 (612.39 Au 711 Suppl. NBL)

Preschool clinics, run by CRS in Lesotho and Ghana, provided health care, health and nutrition education, immunizations, food distribution and family planning. In Lesotho in 1977, the clinics were covering 50 000 preschoolers, and in Ghana 130 000. Growth charts were used to monitor growth and as an educational tool. To measure costs and cost-effectiveness, data from nine clinics in Ghana and ten in Lesotho (? sampling) ware collected in 1977 and 1978. Synactics Corporation, USA, examined nearly 2 000 mother-child pairs from these clinics in each country, while the H.I.I.D. examined a sampla of 265 6-24month olds in Ghana, and collected costs from all study clinics. Out of the 500 variablas collected by Synactics, only those that were of good thaoretical sensitivity (defined and listed) were used by H.I.I.D. In Ghana, only cost-effectivenass of programme components was measured. In Lesotho, data from 1 370 non-clinic attanding children who had been surveyed previously were usad as controls to the 1 412 clinic attenders. Effectiveness was measured by the number of cases of malnutrition (i.e. % W/A less than 80%) averted.

In the Ghana-H.I.I.D. study, it was found from regression analysis that variables affected by participation in the clinic programme were more important determinants of nutritional status than socioeconomic variables. Nutrition counselling and the educational aspect of the weight chart appeared to be associated with improved nutritional status, but not food collection or nutrition lectures. Food collaction was associated with increased clinic attandance, but not attendance at nutrition lectures. Food collection and nutrition lactures were not associated with improved nutrition knowledge. Water supply and sanitation were significant determinants of nutritional outcomes. From the H.I.I.D. cost studies in Ghana and Lesotho, the costs related to food distribution (food and handling) were 75-92% of all costs. Cost effectiveness ratios were low for food distribution, but high for preventive health measures. The relatively low coverage of preschoolers by the clinics is pointed out. The policy implications of the study (i.e. the rola of supplementary foods, the need to increase population coverage and the quality of nutrition education) are discussed. An attempt by CRS to target supplementary food more effectively in the Cameroons is described.

The limitations of the study, especially the part carried out by Synectics, is discussed. These included the lack of quantitative dietary data, the unreliability of mortality and morbidity data, the difficulties of costing components and the lack of base-line data in Ghana.

The report gives little information on sampling - also it is difficult to know how well matched were the controls and samples of the Lesotho study, especially as the data were collected in different years. However, although the data base may have weaknesses, the sophisticated analyses probably helped to compensate for this and the general results are important and useful to nutrition planners.

This is one of the very few studies in which cost effectiveness of the various components of an integrated intervention have been measured. The low cost-effectiveness of food distribution in these clinics and the discussion on food aid is of particular interest.

E04 Brolmann, H., Perk, J. & De Vries, B. Nutrition survey in Quthing
1976 district. Lesotho. (mimeo) 4p (C.B. NBL)

Using the arm circumference (AC) as an indicator of nutrition status 303 1-5 year old regular attenders at a preschool clinic (providing health education and care, weight surveillance, vaccination, and selling cheap food) were compared to 161 children from an area with no clinic. The proportion of children with AC below 14 cm was significantly lower, and the mean AC was significantly higher, in the clinic group. Boys and 3-4 year olds had higher AC than girls and 1-2 year olds.

No details are given on how similar the groups were in respect to age, sex and socio-economic status. The contributions of the various inputs to the seemingly improved nutrition status of the clinic children cannot be determined. AC is a rather insensitive indicator. However, the evaluation methodology used is easy, quick and cheap and it could perhaps be developed for similar rapid evaluations.

E05 Chadha, R. The integrated child health scheme : an integration
1979 of a preschool programme with health and nutritional services.
XVI Nat. Conf. Ind. Acad. Pediat., Calcutta. 19p
(from abstract in *Nutr. Plann.* 2 (4) no. 873)

Evaluation of a State government/CARE programme in the slums of Calcutta which provided supplementary food, immunizations, iron and vitamins, deworming, health care and nutrition education for 1 000 poor preschoolers showed that: attendance averaged 90%; 60% of planned meals were distributed; improvements in W/A were found at all ages especially the 24-35 month group; there was a significant decrease in clinical incidence of hypovitaminosis A & C and in the prevalence of some infectious diseases, including diarrhoea.

E06 Christian Commission for Development in Bangladesh. Companiganj
1980 health project : Noakhali - Workshop 1980 on results and experiences ? Dacca 78p (from abstract in *Nutr. Plann.* 4 (2) no. 1658)

Describes and evaluates a project which delivers preventive and curative health services, with emphasis on family planning, maternal and child health, and nutrition. The project relies heavily on project-trained local personnel and community involvement.

Major conclusions and recommendations related to organization, administration and costs. Overall, the programme was considered to have been relatively successful, particularly in the area of family planning. No details of the impact of the programme (which included nutritional supplements for malnourished children) on nutritional status are given in the abstract.

See also McCord, C. 1977. Fd Res. Instit. Studies (Stanford) 16 (2) : 91-105 (LIB) and item D14 for a critical review.

E07 Dhanamitta, S., Virojailee, M.S. & Valyasevi, A. Implementation
1981 of a conceptual scheme for improving the nutritional status of the rural poor in Thailand. *Fd & Nutr. Bull. (UNU)* 3 (3) : 11-15 (NBL)

A pilot project, integrating health care, nutrition, agricultural and food production and vocational training, was implemented in a village in 1976-80. Curative health care was used as an entry point, followed by preventive health care then family planning, promotion of sanitation, hygiene and health education. The nutrition components included surveillance, food production, processing and distribution, supplementation and education. Seven locally prepared supplementary food mixtures were tested and given to cases of 2° and 3° PEM (? amounts). Training in food production and vocational skills was carried out. Full community participation was achieved within six months.

An evaluation of the effectiveness over the last 18 months (when food supplementation was implemented) was determined by measuring W/A of all the 202 preschool children. There was a significantly lower percentage with all degrees of PEM after the intervention.

Although not many details of the methodology of the evaluation are given, the project does seem to have made an impact on nutritional status. It will be interesting to see if this intervention model can be replicated in areas where there are no extra staff (i.e. using regular health, agriculture and community development personnel).

*E08 Drake, W.D., Fajardo, L.J. & Miller, R.I. Project on analysis of
1980 community level nutrition programs. IV - The Promotora
Program in Candelaria Part 1: A Colombian attempt to
control malnutrition and disease, 1968-1974. Part II:
A revisitation two years after program end. Ann Arbor,
Mich. Community Systems Foundation. For USAID. 148p
(Nutr. Plann. Doc. no. 130 612.39 P945 NBL)

The Promotora programme in which young girls, trained for six months, visited all the 0-6 year old children in Candelaria every two months, was started in 1968 and ended in 1974. Education on nutrition, hygiene and utilization of health services was given, heights and weights collected and sick children referred to a health unit. Mothers were asked to recall the frequency of diarrhoea.

Detailed records were obtained on 80% of the child population and their families in spite of a high rate of migration. This data is used to evaluate the programme in Part I of the report. An additional set of data was collected in 1976 from 498 randomly selected mothers, 265 of whom had participated in the Promtora programme.

Results from Part I showed that the rate of malnutrition (15% below Harvard W/A) dropped from 29% in 1968 to 21% in 1974 - the reduction being greater for girls than boys. This occurred in both literate and illiterate homes and in spite of a drop over the years in purchasing power and food consumption. A greater reduction in malnutrition occurred among children entering the programme in their first year compared to those who joined in later years. The incidence of diarrhoea was reduced by 20-50%. The use of contraception more than doubled during the programme. Two years after the end of the programme, the only definite positive result was that pregnancy rate was about 30% lower among participants than non-participants.

The authors conclude that the Promotora programme 'appears to have successfully reduced' malnutrition, and that 'it promises to achieve similar results.....elsewhere'. However, more information is needed to verify these statements. The quality of data collection is not described, there is no 'control' group and no information on possible non-programme variables. The longer exposure of participating mothers than non-participating mothers (a large proportion of whom were migrants) to the regular family planning programme may have been responsible for the lower pregnancy rate. Even so, this is an important and interesting study. It would have been more useful if data on costs had been included.

See items D09 and E20.

E09 FAO 1979 Patterns of growth of children receiving food supplements in rural Lesotho. Cohen, N. & Clayden, D. Rome. ESN/FAO. 111p (C.B. NBL)

Health care, weight surveillance, immunization, individual and group education, and take-home monthly food supplements (400-500 kcal and 14-22 g protein) were provided at a preschool clinic. Mothers who attended regularly helped with food distribution, health promotion and weighing. About 20% of total preschoolers in the area attended the clinic.

The stated objective (p42 of the study) was to evaluate the effect of food supplements and other influences on the under-5 population. 9 949 serial weights from all 1 321 children attending the clinic between 1969-73 were collected. Socio-economic and mortality data were obtained from 300 mothers (? sampling). Documented birth-dates were not available.

Fifty percent of children made less than six visits, those over two years being brought least regularly. Over the period studied there were no clear trends in %W/A or in patterns of weight loss between visits. The 348 regular attenders (more than 10 times in two years) aged under 1 1/2 years were heavier (? significant) than the 662 less regular attenders in the same age group. Children who had received BCG were heavier from an early age.

The evaluation design does not seem matched to the stated objectives nor does the sample necessarily represent the total under-5 population. The 'dose' of supplements received or consumed is not documented but indications are that it was low. Mortality data were collected (by recall which is unlikely to be valid) but not reported. The effects of the various clinic inputs have not been desegregated and because there were no controls, the effects of non-programme variables are not known.

The conclusion that the impact of the food supplements was slight is probably correct if only for the reason that not much food was actually consumed by the children. However, the results are inconclusive.

E10 Field, J.O., Miller, R.I. & Drake, W.D. 1981 Project on analysis of community level nutrition programs Vol. III Kottar: malnutrition, intervention and development in a South Indian district. Ann Arbor, Mich. Community Systems Foundation. For USAID 153p (Nutr. Plann. Doc. no 1547 612.39 P 945 NBL)

A community health development project (CHDP) in Tamil Nadu, India is part of the Kottar Social Service Society (KSSS), which is affiliated with the Catholic Church. CHDP includes take-home food aid, nutrition and health education, health care and growth monitoring in over 40 000 children in 124 villages; services are provided by trained village girls only after a request from the community. The project is largely self-supporting and there is a high level of participation.

The project was evaluated in 1977 by collecting longitudinal and cross sectional data on over 4 000 almost-randomly selected children. No control data were available for analysis.

The results indicated that improvements had occurred in anthropometric and mortality indicators between 1975-1977, particularly for severely malnourished children, and that these might be partially attributed to the KSSS programme. These indicators were, however, more sensitive to the price of rice. The results were found to be dependent to some extent on the choice of growth standards, nutrition indicators and analytical techniques. Several observations relating to the difficulty of determining the correct strategies for overcoming malnutrition are made.

This is an interesting report because it tries to determine the impact of a large, indigenous, on-going project from simple data collected by village workers, subjected to stringent analytical testing. There is a good discussion of some of the problems of evaluation design in this type of situation and of data analysis. There is no attempt to determine which component of the CHDP has the greater impact.

*E11 Gopaldas, T. et al. *Project Poshak: an integrated health-nutrition macro pilot study for preschool children in rural and tribal Madhya Pradesh.* Vols. 1 and 2
New Delhi, CARE-India. 245p & 327p (612.39 G4 NBL)

The aim of the project was to assess the operational feasibility and cost effectiveness of a 'take-home' food delivery system combined with health services and childcare education using the existing government rural health network. The project lasted 5 years and was conducted by the national and state governments, CARE, USAID and UNICEF. Service inputs were: weekly rations of PKFM and ICSM to 6-36 month old children (337 kcal and 19 g protein) and 'mothers' (754 kcal and 38 g protein); nutrition education (individual, group and mass media) using visual aids, in the home and village; health care and surveillance fortnightly; some immunizations and deworming. Operational feasibility and efficiency, cost-effectiveness, and impact on health/nutritional status were evaluated. For the latter, data on anthropometric indices, clinical signs, episodes of illness, educational scores and dietary intake were collected for experimental and age-matched control children.

The following are among the many results reported in Vol. 1:

- the final weights of 688 experimental 0-3 year olds who received inputs for 44 weeks were not significantly different from those of 73 age-matched controls. However, mean final weight of 283 experimental 1-3 year olds who had collected over 50% of rations was significantly higher than that of 55 age-matched controls (p138).
- the mean final weight of 25 children who had received supervised on-site meals for 365 days (62% attendance) was significantly higher than that of 33 children receiving take-home supplements (51% attendance) and 43 controls. When weights were analysed by percentile classification, there were no

significant differences. Drop-out rate among the three groups was 42-57% (p208-215).
- differences in weight status over 16 months between 43 controls and 22-57 children receiving different combinations of service inputs showed that the combined package of the food/health/education inputs was most effective, followed by food/education then food and then education/health care (p225).

Other results cover: delivery systems; staff attitudes; programme efficiency; utilization and consumption of rations; spin-off benefits; pricing vs free food distribution; schools as alternate infra-structures and development of indigenous weaning foods.

Among the authors' conclusions and recommendations are the following:
- total costs were about $15/child/year;
- the delivery system was viable and capable of reaching and benefitting the target group;
- overall, the project had succeeded in improving the nutritional status of the intervened children;
- only slightly better growth was obtained using on-site, instead of take-home distribution, at 1 1/2 times the cost;
- the project had succeeded in bringing about a desirable shift in income distribution to the poorer groups;
- supplementary rations should be targetted to 1-6 year olds to maximize impact and minimize sharing. 'Mothers' probably need minerals and vitamins more than extra foods;
- mean 'weight status' was considered a reliable monitoring and evaluation tool. Mortality data are sensitive but difficult to collect.

The format of the report and the mass of data make it difficult to find salient facts. In several of the studies, the drop-out rate was very high which might have biased results, and some results do not stand up to statistical testing (see item D08). However, the evaluation design is given in great detail and the general consensus of opinion from this and other reviewers, ie that this very comprehensive evaluation of a well designed project has produced useful results.

The package of inputs appears effective, feasible and not too costly. Cost effectiveness for individual inputs would have been useful. The project relied heavily on food aid which may not always be available. Few results are given on impact of project on maternal nutrition.

Reasons why the project was not accepted as a regular programme by the State government are given in Pyle, D.F. 1979, The problems of transition from pilot to operational program : the case of Project Poshak in India. MIT Internat. Nutr. Planning Prog. Discussion Paper no. 15 (S73 273 NBL).

For comment see item D35.

See also, Austin, J.E., 1981. *Nutrition programs in the third world.* Mass., Cambridge. Oelgeschlager, Gunn & Hain.

*E12 Hoorweg, J. & Niemeijer, R. The nutritional impact of the preschool
1980 health programme at three clinics in Central Province, Kenya.
African Studies Centre, Leider, The Netherlands.
Research reports no. 11. 69p (C.B. NBL)

The effects of the CRS health programme, in which 6-60 month old children are weighed and nutrition education and CSM, DSM, bulgur wheat and oil are given out, was evaluated in three ecologically different villages in Central Province. Out of a total enrolment of about 17 500 children, 82 mothers who had been participating for over 1 1/2 years, and 70 who had joined the programme in the previous six months, were interviewed and their children were examined. The indicators compared were: nutritional knowledge; maternal food preferences; food consumption of the child nearest to two years of age over previous day; childrens' 'nutritional status.

Knowledge and food preferences of mothers improved with length of attendance, but not the diet prepared for their children. However, since nutritional status of the children is maintained, it is felt that food supplements were having a beneficial effect, although they did not cause catch-up growth in stunted children.

This is a well designed evaluation, given the constraints of a large on-going programme, and it indicates that take-home food supplements were having a limited beneficial effect. There is no discussion of the amount that might be shared. Dietary recall data were collected a month after rations had been distributed.

See item G22.

E13 Humphrey, M.S.W., Miller, R.I. & Drake, W.D. Project on analysis of
1980 community level nutrition programs. Vol. II Esperanda :
a programme to improve health and nutrition in the Central
Amazon. Ann Arbor, Mich., Community Systems Foundation.
For USAID. 101p (Nutr. Plann. Doc. no. 1546. 612.39 P 945
NBL)

A preventive rural health programme covering two villages in the Amazon region, Brazil was evaluated by matching the villages with two controls and measuring W/A, hematocrit and presence of parasites at two surveys 12-18 months apart.

Results indicated that the programme was having an effect in one village, but not in the other. This was thought to be due to the different level of intensity of application of service.

The report gives a full description of the evaluation and examines the implication of the results in detail.

E14 Integrated Child Development Service. A coordinated approach to
1981 childrens' health in India. *Lancet* i (8221):650-653 (LIB)

Describes the Integrated Child Development Service (ICDS) which was started in 33 backward blocks in 1975. Nutritional, health and educational services for children and 'mothers' were delivered mainly through community workers with four months training who had strong links with the primary health centre and child development project officer.

Delivery and impact of services were assessed by comparing immunization coverage, food and vitamin A distribution and nutritional status in 15 blocks (n = 18 000 children) before and 21 months after implementation of ICDS.

Nutritional status had improved (results suggest a significant reduction in 3° malnutrition) and immunization and nutrition intervention coverage increased. Factors thought to contribute to the success of the programme included: involvement of the academic fraternity; integration of services; 'on-the-spot' distribution of supplements and delivery of services by a trained female community worker.

There are insufficient details to determine the scientific validity of some of the results and no discussion of non-programme variables. However, the large numbers examined do suggest the programme was having a positive effect.

See also All India Institute of Medical Sciences 1978 - Integrated child development services scheme : second repeat survey reports. New Delhi (Nutr. Plann. Docs. 1038-1046).

E15 Jacob, F. An analysis of the growth charts of a sample of children
1973 from the preschool centres in Lesotho. Nairobi, CRS - USCC
Field Bull. no. 17 p12-22 (Lesotho C.B. NBL)

To assist parents in promoting adequate growth of their children CRS preschool health centres monitor weight and health monthly using growth charts, give individual and group instruction to mothers and provide (when available)take-home food supplements (? nutrients).

To evaluate the programme, all available growth charts of previous attenders aged 0-5 years at seven centres who had attendance rates of over 50% and a minimum length of attendance of six months, were examined (n = 2 563). The data were segregated by age of admission and length of attendance.

When starting and finishing weights were compared, there was a decrease (? significant) in the proportion below 80% W/A. Percent with low weights decreased as length of attendance increased. Weights of children attending for over one year were significantly higher than those of new attenders of the same age.

This is one of the few evaluations carried out using routinely collected data. Although the design did not allow the contributions of the different clinic inputs to be assessed and although new attenders may not be good controls (because of important differences between children who join the clinic at different ages) the design warrants further investigation.

The results indicate that the clinics help maintain, and probably contribute to, adequate growth of regular attenders although 69% of new attenders are adequately nourished and the cost of increasing this to 92% must be quite high. No results are given for irregular attenders.

For a comment on these results, see item D32.

E16 Jacob, F. An evaluation study on the preschool health programme ?1975 in Rwanda. Nairobi, CRS - USCC *Field Bull.* no. 25 37p (C.B. NBL)

In a sample of ten, out of a total of fifty, CRS centres supplying health and nutrition care and surveillance, and supplementary take-home foods, data were collected on attendance (70-100%), rations (380 kcal and 15 g protein), growth, mortality, understanding of the weight chart and food practices. Analyses of 1 500 charts (5% of clinic attenders) showed that the percent with acceptable weight (i.e. more than 80% W/A) was 'definitely' greater among those attending more than one year than among newly registered children of the same age, and also that acceptable weights correlated positively with length of attendance. Weight velocities of 539 attenders over one year were similar to the Harvard weight curve. Mortality data, obtained by questioning 181 mothers, showed that 19% of children died before the age of five years. However, since some live children were still below five years, this figure may be falsely low.

Similar comments apply as for item E15.

For comment, see item D32. For similar evaluations in Ghana and Upper Volta, see Jacob, F. 1975. An evaluation study of the preschool health programme in Ghana. CRS -USCC. *Field Bull.* no. 24 p1-13. Nairobi, Kenya. (Ghana C.B. NBL) and 1974 CRS-USCC *Field Bull.* no. 21, Nairobi, Kenya (cited by item D32).

*E17 Kyu-Taik Sung. Integrating nutritional and family planning
1978 education food services in Korean day care centers : an
evaluation. *Publ. Hlth Rep.* 93 (2) : 177-185 (C.B. NBL)

The report evaluates the initial two years of a CARE-assisted integrated day care programme (IDCP) for low-income families at which lunch and snacks (food provided by the government and WFP) were given six days a week, and nutrition and family planning education given to mothers. In 1975, 30 000 preschoolers and 14 700 mothers were covered by the programme at a cost of $796 446.

The programme was evaluated by a questionnaire administered to 1 029 mothers at 30 IDCP centres and 459 mothers at 15 non-IDCP centres. In addition, records were examined, observations made, and 1 147 4-5 year old children in IDCP centres and 504 in non-IDCP centres were measured. The intake from the centres' meals of 30 IDCP and 15 non-IDCP children were recorded. Mortality rates were collected.

The mothers' responses indicated that the IDCP centres scored much better than the non-IDCP centres in respect to food services, nutrition education and family planning. The food served at the IDCP provided significantly more energy and nutrients than that at non-IDCP centres, mean heights and weights were consistently higher and IDCP mothers put their nutritional knowledge into practice more successfully than non-IDCP mothers. When the results of the 1975 study at IDCP centres were compared to similar data collected in 1973 mean child weight, mothers' rating of their childrens' health, age of weaning and percent of mothers practicing family planning had all improved (? significant).

This appears to be a well planned and implemented study and, although the results have not been tested for statistical significance, it seems that the combination of supplementary feeding and nutrition and family planning education has had an impact on the weights of low income children and the knowledge and practices of their mothers.

E18 Niameogo, C. Les monitrices de bouillies en zones rurales de
1976 Haute-Volta. *Les carnets de l'enfance/Assignment Children*
35 : 31-40. Summaries in English (p 119) and Spanish (p 124)
(NBL)

The medical sector of Yako in Upper Volta, in order to deal with malnutrition caused by the Sahelian drought, opened a Centre for Nutritional Rehabilitation and Education. It also trained nutrition auxillaries chosen by village leaders, to identify and refer malnutrition, and to teach mothers how to feed their children. In order to eventually eliminate the main causes of malnutrition, local committees were created to stimulate and coordinate work in the fields of agriculture, animal raising, water supply and reforestation.

In 1973, 19% of cases referred to the NRC were of advanced malnutrition, but by 1976, these cases had virtually disappeared.

From the limited amount of data provided, it appears that the prevalence of severe malnutrition had decreased. Because non-programme variables were not controlled (probably because this was not practical) it is not known to what extent the result was due to the programme. Nor is it possible to know whether the greatest impact was achieved by the teachings of the nutrition auxiliaries or the treatment at the NRC.

See items G20 and P01.

E19 Noordin, R.A. Integrated food and nutrition programme at village
1977 level - the Malaysian experience. Consultation on
improving nutrition of the rural poor in Asia and the
Far East. Bangkok, FAO, Regional Office. 14p
(Access. no. 36129-77-XB)

The integrated nutrition programme started in 1971 in Kuala Langat District, which included agricultural extension activities, nutrition and other types of education, health activities and supplementary feeding is described.

An assessment carried out in 1973 found a (? significant) fall in toddler mortality and a (? significant) increase in toddler W/A. The biggest impact was improved attitude towards nutrition among the people and a better spirit of cooperation among government officials. School attendance and performance increased.

No details given in this brief report on how this assessment was carried out.

E20 Nystuen, J.D. Project on analysis of community level nutrition
1980 programs. Vol. V. The PRIMOPS experience : information
processing in the design and performance of a health care
system. Ann Arbor, Mich. Community Systems Foundation.
For USAID. (Nutr. Plann. Doc. no. 1549. 612.39 P945 NBL)

PRIMOPS is an outreach health and nutrition programme among the 58 000 inhabitants of a poor urban barrio in Cali, Colombia. Community health workers (promotoras) and auxiliary nurses give simple health care and education to mothers and small children at health posts or regular periodic home visits. The programme is similar to that described in item E08 but of less intensity. It started in 1973 and, after a break in 1974-5, became a regular part of the health care system of Cali.

The programme was examined in 1978 to observe the way in which routinely collected data was used to monitor and improve implementation and to demonstrate impact on health and nutritional status. This was done by interview and observation, and analysis of 'cleaned' records. The latter consisted of longitudinal data on 12 770 children.

The percent of malnourished children (below 85% of Colombian growth standard) decreased from 32% in 1976 to 27% in 1978. However, it is not known whether this change could be attributed to the programme or not.

The authors recognise that the available data are not of sufficient quality to measure impact. However, the study does provide several ideas about the rapid feedback of data for programme improvement - one of the main purposes of evaluation.

See item D09.

E21 Ocampo, E.D. & Macahilig, C.P. The Barangay nutrition and
1979 health scholars project of Metro Manila : an evaluation
Nutrisyon 4 (1 & 2): 39-48 (NBL)

An evaluation of Barangay Nutrition and Health Scholars (BNHS) Project in Manila in the Philippines was undertaken two years after it had started. The project encourages community participatión in nutrition interventions through BNHS who are chosen by the community and given a short training.

To gather data on the effectiveness of the project, a total of 239 Barangay leaders, mothers of malnourished children, BNHS trainers and BNHS were interviewed in zones of Manila representative of areas where BNHS were active. These covered 94 out of the 260 barangays where there was an active BNHS.

The results indicated that in the majority of barangays examined there was an active barangay nutrition committee, malnourished children were being re-weighed monthly, the majority of malnourished children had improved to some extent, food supplements were being channelled to malnourished children, BNHS had put up pots and plants, mothers of malnourished children were receiving nutrition instructions, and BNHS were cleaning up the enviroment to promote cleanliness. BNHS were less successful in completing the weighing of all children in the barangay, or in affecting family planning referrals.

This is a useful study of an urban community nutrition programme. It would have been more objective if it had been carried out by someone not connected with BNHS training; also it is not clear how the sample was chosen.

E22 Pyle, D.F. Voluntary agency-managed projects delivering an
1979 integrated package of health, nutrition and population services : the Maharashtra experience. *MIT Internat. Nutr. Plann. Prog. Discussion Paper* no. 18 46p
(S73 273 NBL)

Describes and analysas saven integrated nutrition/health projects in India. These include: the Kasa project (item E23) and the Jamkhed project (item E01). It is concluded that, with few exceptions, there is little data from which to assess costs or impact. Suggestions for developing integrated projects are given.

This is a useful review of the Maharashtra State projects.

This study is included in items D28 and E02.

See also Pyle, D.F., 1981. From project to program : the study of the scaling up/implementation process of a community-level, integrated health, nutrition, population intervention in Maharashtra (India). MIT Doctoral dissertation. (from abstract in *Nutr. Plann.* 4 (4) no. 1870).

*E23 Shah, P.M. & Corra, D. The Kasa MCHN project : 2nd progress
1976 report. April 1975-1976. Bombay. 106p
(Indian C.B. NBL)

An integrated health/nutrition project for mothers and preschoolers in poor rural areas of Maharashtra, India, was supported by the National and State governments and CARE. The services provided were: health/nutrition surveillance and education (i.e. discussions in homes on growth, health and weaning); health care; supplementary take-home foods for lowweight children (285 kcal and 16.5 g protein) and pregnant women (380 kcal and 22 g protein). Most services were given in tha home by village workers with little formal education. The aim of the project was to test the administrative feasibility of this approach to reducing malnutrition, mortality and birth rates. The report covers the first year of implementation.

Data on programme operations (including food distribution and weights of mothers and children) were routinely collected by the village workers using simple records and growth charts. Weight gains of the 1420 'fed' children, compared to expected gains, were used to assess the nutritional impact of feeding.

There were problems related to administrative delays, recruitment of staff, abilities and attitudes of village workers, delivery of rations and attitudes of the population, which prevented the services being fully implemented. Ration consumption by target group was probably low due to sharing. Supervision of home feeding was limited by lack of personnel. The percent of low weight (less than 65% W/A) children who, after supplementation, gained 10% more weight than expected (Harvard reference) was 38% after 6 months and 56% after one year.

Although the % consumption of rations, quality of data collection and the effect of non-programme variables is not known, the results are sufficiently positive to indicate that feeding improved nutritional status in these very low weight children. No attempt was made to evaluate the effect of the limited education given.

The report provides an excellent description and discussion of the real problems (both expected and unexpected) of implementing this type of project and is recommended to planners and evaluators.

The 3rd progress report, 1977 (Indian C.B. NBL), describes the development of the project which included chlorination of village wells and abortive attempts to use older villagers to supervise supplementary feeding, and pigeons to carry messages from remote villages.

See also *Fd & Nutr. Bull. (UNU)* 3 (1):1-7 1981 and item E22.

E24 Shah, P.M. & Shah, K.P. Provision of health-nutrition services
1981 at the grass-roots level in the Palghar and Kasa projects and the possibility of their replication. *Fd & Nutr. Bull.* 3 (1):1-7 (NBL)

The Palghar project, in Maharashtra State, India, was started in 1972 with the objectives of giving integrated domicilary health/nutrition services in the villages and examining the feasibility of replication on a bigger scale. Part-time social workers (PTSW), chosen by the community, gave health and nutrition care to all children and married women, and supplements to children below 65% W/A in twenty villages. Three outlying villages acted as controls. At risk children were screened monthly (? method) and referred to more senior health workers if necessary.

In the first two years, infant mortality and birth rate fell and nutritional and immunization status improved.

The Kasa project (see item E24), which was an extension of the Palghar project, is also described.

Too few details are given to assess the validity of the results but the importance of the Palghar project was not so much its scientific results, but that it spawned the bigger Kasa project.

E25 Soothill, P.W. et al. A controlled study of the effect of an
1980 Indian comprehensive rural health project on the childrens' arm circumference, adjusted for height. *J. trop. Pediat.* 26 (6):243-245 (NBL)

The study measured the arm circumference adjusted for height of virtually all 1-5 year old children in four villages in the Jamkhed Comprehensive Rural Health Project (see item E01) and four nearby non-project villages (total n=543). No statistical differences were found. Possible reasons for this are discussed, they include: non-programme variables; the effect of infection on growth and sharing of food supplements.

This appears to be a well designed study.

E26 Srinivasan, N. et al. Evaluation of the efficiency of the
1978 delivery of different levels of health and nutrition services to the young child. *Indian Pediat.* 15(7):537-546 (from abstract in *Nutr. Abst. & Rev.* 49 no. 7135 NBL)

The efficiency of 'take-home' feeding programmes, integrated with health care and education services, were evaluated by comparing weight status of 'fed' and 'control' children.

'Fed' children had a better weight status than controls and the higher levels of inputs was related to positive improvements in weight. Efficiency of 'on-site' feeding was higher than 'take-home' feeding.

It is not clear from the abstract, to which of the Indian intervention programmes this paper refers.

*E27 Taylor, C.E. et al. Infection, growth snd development: the ?1979 Narangwal experience. (Draft) For the World Bank
(S.B. 2h NBL)

An experimental nutrition project was run by Indian and international agencies in the Punjab from 1969-1973 the aim of which was to develop operational procedures for health/nutrition services and to measure the impact of these on development, mortality and morbidity of 0-3 year olds. Service inputs were:

- nutrition care (NUT-weighing every 1-3 months, nutrition education in the home, on-site twice daily supplementary meals (400 kcal and 11 g protein) for those whose weights were faltering, iron and folate to anaemic children);
- health care (HC- weekly health monitoring, prompt treatment, immunization, oral rehydration, health education).

Parents were encouraged but not forced to use the services. Rapid monitoring of output data allowed on-going improvements to the service in-puts. Services were supplied and out-put data collected by health visitors who received frequent training and intensive supervision.

To evaluate the project, ten similar villages were divided into four groups which received one of the following services: NUT; HC; NUT + HC; none (control). Average target population at any time was 1 100 0-3 year olds. The following outcome variables were collected: weights and lengths every 1-3 months; morbidity data weekly; vital statistics; diet recall every 3 months; single test of psychomotor development on 479 children; data on socio-economic status, beliefs, anthropometry, diets and biochemical indices every 2 years; data on service costs, utilization, time. Local staff were largely responsible for data collection and using results to improve services.

Results of the evaluation showed that coverage ranged from 35-55 staff/child contacts per year (minimum expected was 52). Malnourished children attended only 40% of feeding sessions but usually ate full rations. Selected results, which were adjusted for sex and caste differences within groups, are as follows (all effects are significant when compared to control group):

- sex and caste affected growth;
- after 17 months of age, growth (% W/A and % H/A) was improved in NUT/NUTHC groups;
- fewer children weighed less than 70% W/A in NUT/NUTHC groups;
- duration of infections was reduced in HC/NUTHC groups;
- age-specific mortality rates were consistently and often significantly, lower in NUT/HC/NUTHC groups;
- duration of breastfeeding increased in NUT/NUTHC groups;
- best phychomotor indices were from NUT/HC groups;
- haemoglobin levels were higher in NUT/NUTHC groups;

Average total cost/child/year ranged from $23 (NUT) to $7.5 (control). 50% of NUT costs were for the feeding programme and 60% of these were for food. Average per capita cost for NUTHC care of 0-3 year olds was Rs 0.7; private health care in control group for 0-3 year olds was Rs 2/capita. Cost of preventing a death was $75-$130 for an infant of less than one week and $1 000-$4 000 for a 1-3 year old. Most cost effective inputs were NUT for improving growth and perinatal mortality and HC for shortening duration of infection and improving infant and 1-3 year old mortality. The conclusion was that the combination of nutritional and health care was more effective in improving overall health and would increase total health expenditure at village level by 40%.

Non-programme variables were identified and analysis allowed for their possible effect on outcome data. There appears to have been excellent quality control of data collection. Sufficient details of evaluation design have been given to allow results to be judged valid. Detailed data are given on cost effectiveness. The following information would have been useful: the percentages of each type of planned staff/child contacts that were missed; growth data expressed in terms of W/H; a separate analysis of the supplemental children to disentangle effects of feeding (expensive) from other inputs; comparison of output variables before and after the project within each group. This was an expensive study with a high input from very skilled staff and would therefore be difficult to replicate. However, it provides a rare example of a successful field-tested evaluation model from which planners might borrow or adapt pertinent features.

The fact that the low cost, 'traditional' health and nutrition inputs have had a proven effect on child growth, morbidity and mortality patterns in a community when delivered in a targetted, supervised programme is likely to make some impact on nutrition/health planning. Because several inputs, which changed in detail over time, were included in each type of service, it is difficult to know which is most effective or efficient. A feature of the study was the repeated staff training and close supervision. It is not known how much this input contributed to the results.

See also:

Taylor, C.E., Kielman, A.A. & Parker, R.L. The Narangwal
1978 experiment on interactions of nutrition and infection.
Indian J. med. Res. 68 (Suppl.) 1-54 (LIB)

Kielman, A.A. et al. The Narangwal experiment on interactions of
1978 nutrition and infections : 2. Morbidity & mortality effects
Indian J. Med. Res. 68 (Suppl.):21-41 (LIB)

Parker, R.L. et al. The Narangwal experiment on interactions of
1978 nutrition and infections : 3. Measurement of services and
costs and their relation to outcome. *Indian J. med. Res.*
68 (Suppl): 42-54 (LIB)

Kielman, A.A., Taylor C.E. & Parker, R.L. The Narangwal nutrition
1978 study : a summary review *Am. J. clin. Nutr.* 31 (11):2040-2052
(NBL)

For reviews, see items D11, D14, D28, D29 and D36.

E28 UNICEF/FAO/OMS/Sistema Brasileiro de Extensão Rural. Avaliação
?1975 dos trabalhos nos projetos de bem-estar: analises conclusões
e recomendações. ABCAR. 210p (Brazil C.B. NBL)

Describes the evaluation of the Brazilian social well-being projects.

See items B05 and B40.

See also items *D09, *D28, D36, G22, *G27, G32, G38, J05, *J28.

4.3 Applied nutrition programmes/projects

F01 Ali, H. bin H.M. An appraisal of ANP in Sarawak : organizational
1979 and beneficiaries prospectives. Malaysian Centre for
Development Studies. Prime Minister's Dept. Kuala Lumpur,
Malaysia 196p (from reference Rural Devel. Abst. 1980 v.3
no. 2013 LIB)

Describes ANP and impact in detail.

F02 Bosley, B. Evaluation of applied nutrition programmes in Latin
1969 Americа : project report AMRO 4210. Washington, D.C. 21p
(C.B. NBL)

The evaluation of the ANP in Latin America between 1964-68 is discussed in general terms and recommendations are given for future ANP and for modifications of existing ones.

Some recommendations are still pertinent.

F03 Burgess, H.J.L. & Maletnlema, N.T. Assessment of the nutritional
1967 status of children in the Hombolo applied nutrition project,
Tanzania. Tanzania Nutr. Committee Report no. 28 (C.B. NBL)

A report of a nutrition status survey carried out in two areas, one where an ANP had been in existence for 2 years (n = 241 preschoolers) and the other in a nearby control ares (n = 215). No difference in the nutritional status of preschoolers was found. Authors considered that time frame was too short for differences in nutritional ststus to become evident.

Results mainly relevant to ANP in Tanzania.

F04 Directorate of Evaluation, Assam Report on the evaluation study of
1975 Applied Nutrition Programme in Assam. Evsluation study
no. 29. India, Assam, Shillong. 50p (from reference
in Nat. Library Medicine Current Catalogue July/Sept. 1981).

No details available.

F05 Government of Orissa. Evaluation of the expanded nutrition
1965 programme in Orissa. Planning and Coordination (Evaluation)
Dept. Evaluation Study no. 12 5p (India C.B. NBL)

Thirty one villages were selected from the 407 in which an ANP programme was operating. By questioning 35 households in each village it was found that the ANP had resulted in increased production of chickens, vegetables and fish and increased consumption of eggs, vegetables and fruit. However, general level of food consumption was much below that recommended. Production and consumption figures were twice as good in those villages where the ANP was supported by women's groups and Panchayati Raj (local community leaders). No control villages were used so it is not known if the results can all be contributed to the ANP.

Mainly of historical interest.

F06 Hofvander, Y. & Eksmyr, R. An applied nutrition program in an
1971 Ethiopian rural community. *Am. J. clin. Nutr.* 24 (5):578-591
(NBL)

The inputs of an ANP (1965-67) provided by the Addis-based nutritional institute included take-home supplementary rations (340 kcal and 15 g protein) for children (? age or how selected), weekly health and nutrition education for mothers, vaccinations, health care, and a school garden and lunch programme. Little sharing of rations was thought to occur if child was over 1 1/2 years.

Anthropometric and clinical data from 212 0-11 year olds (out of the 511 in the village) who had been examined every 3-6 months and whose parents had attended at least 50% of the possible education and food distribution sessions were analysed. Drop-outs were largely due to migration.

No significant changes over the two years of the study were seen in mean % of W/A, H/A, triceps/age or in prevalence of anaemia. There were significant increases in mean % upper arm muscle circumferences for age and a 'marked' reduction in clinical signs of PEM, abnormal chest/head ratios, prevalence of goitre and infections. Authors concluded that there was an appreciable improvement in general nutritional status that appeared to be related to the protein supply.

No controls, so it was difficult to know if non-programme variables were affecting results. It is not possible to know which ANP variables were responsible for the effects. No data is given on amount of food actually received or consumed.

It seems that there is only subjective evidence that the ANP had any impact on nutritional status except for goitre.

F07 McNaughton, J. Applied nutrition programmes. *Fd Nutr. (FAO)* 1 (3):
1975 17-23 (F) (S) (NBL)

The origins, development and assessment of ANP in Africa, Latin America and Asia are discussed as well as the successes and weaknesses of the programmes.

A useful overview.

F08 Miller, D.S. et al. The Ethiopia applied nutrition project. *Proc. R.*
1976 *Soc. Lond.* Series B 194 (1114):23-48 (LIB)

Describes an experimental integrated health and nutrition education project in a small town in 1970-73 which was supervised, funded and to some extent implemented by a foreign team. A similar town acted as a control. Inputs included; health surveillance, care and education, therapeutic injection of iodine and administration of Lugol's solution, nutrition education in schools, and horticulture and poultry keeping schemes. A significant improvement in infant mortality and goitre rates and some improvement in preschool growth rates occurred over two years.

The relative contribution of each of the inputs (including the foreign supervision) to these effects is not known.

*F09 Muthayya, B.C. et al. Evaluation of applied nutrition programme:
1978 a study across the six states. Hyderabad, Nat. Inst. Rural
Dev. 142p (India C.B. NBL)

The objectives of this evaluation were: to study the opinions and attitudes of beneficiaries to the ANP in India (operational in 1977 in about 35% of blocks) and the perceived benefits; to find out the extent of participation of community leaders and government officials and the benefit derived from the training of various functionaries. One ANP village and one control village were selected from each of four ANP blocks in each of six States. Fifty respondents from ANP villages and 25 from control villages were questioned together with leaders and officials from each type of village. Much information was collected. In general the results show that there was general appreciation for the ANP but that it had not made the impact expected. It was recommended that the programma be adjusted to the basic needs of the people and that the administrative machinery be restructured with a line of command with definite responsibilities.

A useful document for planners and evaluators of ANP and one of the few which reports the opinions of programme participants and functionaries.

F10 Prosper, S.M., Lexander, A. A joint UNICEF/FAO evaluation of the
1973 applied nutrition programme in Swaziland ESN: MISC/73/2, FAO,
Rome. 30p (C.B. NBL)

There were no base-line data and attempts to traca the contribution of the programme were unsuccessful. The team found it impossible to determine what could actually be attributed to the project since many of the activities had existed before the project was begun and were still continuing. Contains recommendations for future action.

Of limited value because of lack of results.

*F11 Rao, N.P. et al. An impact evaluation of the applied nutrition
1978 programme. Hyderabad, Nat. Inst. Nutr. 40p
(India C.B. NBL)

ANP activities included nutrition education, food production and feeding programmes, strengthening woman's organizations, integration of nutrition and health services, encouraging block planning and training of functionaries.

Cross-sectional data on nutritional status (clinical and anthropometric), food intake (24-hour recall), knowledge and attitudes to the programme, and practices related to food production and weaning were collected from 100 households from eight ANP villages and eight control villages in six States to evaluate the programme.

Among the many results reported are:
- the ANP was perceived mainly as a feeding programme
- local foods were included to some extent in the rations of all feeding programmes;
- the educational component in the feeding programmes was generally low but seemed to have led to some concept of the relationship between health and feeding;
- mothers' knowledge of correct weaning practices varied widely between States;
- in some ANP villages, nutrient intake was higher than in control villages;
- the nutritional status of children was generally better in ANP villages (but significantly so only in two States);
- only 1/4 of functionaries knew the correct objectives of the ANP but the majority felt the programme to be at least partly successful in achieving some of its objectives;
- problems cited included lack of cooperation from villagers and lack of funds and resources;

Problems in food production activities are discussed in detail.

There was no baseline data and little information on the amount of input and services actually received by the participants. However, controls were used and the overall results are probably valid.

Although the results are somewhat specific to India, the recommendations that the ANP should be better integrated with rural development activities and that objectives and strategies be clarified are probably pertinent to other similar interventions.

F12 Riji, H.M. Report of the applied nutrition programme in Kuala
1977 Tranyganu. Abst. Instit. Med. Res. Sci. meeting, Malaysia
p26-29 (from abstract in an annotated bibliography of
nutrition research in Malaysia 1900-1979. 016.612.39 (595)
T 22 item no. 523 NBL)

Extensive interviews and questionaires were used in an attempt to evaluate the progress of the ANP during 1974-76. It was concluded that the ANP was not being effective and the reasons for this are discussed.

F13 Sung Kyu Chun. The applied nutrition programme in Korea.
1977 Consultation on improving nutrition of the rural poor in Asis and the Far East. Bangkok, FAO, Regional Office 17p
(Access. no. 36127-77-XB NBL)

The Home Improvement programme, which includes improved food processing and management of day-care and group feeding centres, production of nutritious foods, nutrition education in 'nutrition improvement 'centres',school feeding, mobile 'nutrition guidance' vans equipped with cooking and audio-visual equipment, and training is described.

Effects of the programme include evidence of behaviour changes, increase in average energy and nutrient intake, increased heights and weights of children, increased farm income.

No details of the methodology used for evaluating the programme are given in this brief report.

See item F15.

F14 UNICEF. Assessment of applied nutrition projects. Hundley, J.M.
1966 UNICEF Document E/ICEF/L1266 and E/ICEF/L1266 Add. 1 86p
(60133-66-MR NBL)

Describes the assessment of ANP in the Philippines, India, Ivory Coast, Colombia and Trinidad undertaken by the author.

Gives a useful overview of the situation, problems and strengths of the projects at that time.

F15 UNICEF/FAO. Korean applied nutrition programme. Miller, D.S.
1976 Consultant report. (Restricted) 28p (C.B. NBL)

Describes the background, objectives and evaluation studies of the ANP. The recording of evaluation data was considered excellent but they had not been statistically analysed. The consultant concludes that nutrition education had led to an improvement in health.

Taken overall, the results presented do suggest that the ANP had contributed to improved nutritional status.

See item F13.

F16 Vargas Gonzáles, W. Programas de nutrición aplicada en zonas
1976 rurales de Costa Rica. *Les carnets de l'enfance/Assignment Children* 35:80-91 (NBL)

Describes a retrospective investigation of the impact of on-site food supplements (230 kcal), health care and health improvement on infant and child mortality. Area infant and child mortality rates decreased markedly (? significant) over a year when compared with rates in a control area.

Programme design did not allow the separate influences of the different inputs to be assessed.

F17 Walia, B.N.S. Evaluation of a nutrition programme : an assessment
1975 of ANP in one block of an Indian State. *Indian Pediatr.*
12 (1): 107-108 (from reference in item D29 p193)

No details available.

See also items *D28, E19, G09, G12, G25, G30, I02, L17 and *N22.

4.4 Nutrition education

G01 Alderman, M.H. et al. A young child nutrition programme in rural
1973 Jamaica. *Lancet* i (7813):1166-1168 (LIB)

Describes a programme in Elderslie, Jamaica, in which community health workers monitored the health of all 0-5 year olds, diagnosed and treated malnutrition (by home based education and demonstration) and referred cases, if necessary, to a clinic where DSM was available. Deaths of 0-5 year olds decreased by 50% over first two years of programme.

Numbers may be too few to permit mortality findings to be significant.

*G02 Alderman, M.H. et al. Reduction of young child malnutrition and
1978 mortality in rural Jamaica. *J. trop. Pediat.* 24 (1): 7-11 (NBL)

In 1973, the Young Child Nutrition Program (YCNP) (see item G01) was extended to the east of the parish of Hanover. Trained community health aides regularly weighed children under four years and gave nutrition education to the parents of malnourished children in their homes. Supplementary take-home rations were given when available. The programme was started in west Hanover in 1974.

The prevalence of malnutrition (below 75% W/A) was similar in both areas immediately before the programme started in each, and dropped significantly in both within a year. However, incidence of new cases did not decrease. Mortality rates also decreased significantly with the introduction of the programme. Non-programme variables were examined but were not considered to have affected results. The lack of effect on the incidence of malnutrition was thought to be due to the therapeutic, rather than preventive nature of the programme.

The stepwise introduction of the intervention provided a good evaluation design, and the results indicate that this surveillance and education programme had significant results. A paper of particular interest to nutrition education planners.

See items D11 and D14.

*G03 Biddulph, J. Promotion of breast feeding : experience in Papua
1981 New Guinea. In *Advances in International Maternal and Child Health* Vol. 1. p169-174 (P42 Ad91 NBL)

Describes impact of the steps taken since 1977 to increase breast feeding. These included education of health workers, school children and community, and legislation controlling advertising and the sale of feeding bottles and teats.

This has resulted in the number of outlets for feeding bottles being reduced. There does not appear to be much of a 'black market' in bottles and the prevalence of artificially fed children under two years of age in Port Moresby dropped from 35% in 1976 to 12% in 1979.

A useful overview of an intervention which has successfully increased the prevalence of breast feeding.

See item M06.

G04 Burkhalter, B.R. & Quintero, G. The Lo Barnechea breast feeding
1978 project re-analyzed. Ann Arbor, Mich., Community Systems Foundation. 101p (Nutr. Plann. Doc, no. 1089. C.B. NBL)

An interpersonal project of mother education and motivation was undertaken in Chile in 1975. No description of the project is given.

Duration of breastfeeding increased from 3.9 months among 138 babies born before the project to 5.5 months among 224 project babies. There were no conclusive results on the effects of the project on nutritional status.

As the authors point out, the differences in clinic attendance rates may have confounded the analysis of the data. Otherwise, this is an interesting report for those aiming to encourage breast feeding.

G05 Caribbean Food & Nutrition Institute. Evaluation of nutrition
1975 intervention programme in the English Caribbean : Lambs River project CFNI-T-80-75 p1-3 (Caribbean C.B. NBL)

Describes a nutrition education programme carried out by volunteers in homes emphasizing breastfeeding and the use of cheap, local and imported foods. No difference in the nutritional status of 0-3 year olds (as judged by % W/A) was found when 126 'visited' children were compared to 60 controls. This could be partly explained by the initial 'malnutrition' rate being 44% in the 'visited' group and 20% in the controls, and by the control families being influenced by the programme.

Not enough details given on data collection for methodology to be assessed but failure to match groups for initial nutritional status largely invalidates the results.

See in this document reports on the breastfeeding campaign in Trinidad and Tobago and supplementary feeding programmes. Few results of their impact were available. See item G18.

G06 Cerqueira, M.T. et al. A comparison of mass media techniques as
1979 a direct method for nutrition education in rursl Mexico.
J. Nutr. Educ. 11(2):133-137 (NBL)

Mass media (radio spots, posters, pamphlets) were used in one area, face-to-face nutrition education in another area, while a third area was control. Nutritional knowledge and food consumption habits improved in both intervention areas but not in the control area.

A useful paper.

G07 Colle, R.D. & de Colle, S.F. The communication factor in health and
1978 nutrition programmes : a case study from Guatemala.
Cajanus 11 (3):151-196 (NBL)

Describes and evaluates a 3-week communication experiment in one plantation with 800 inhabitants. Extensive baseline data were collected before the content and medium of the programme was decided. A cassette recorder bearing a different 30-minute message for each day of the week was placed at each laundering area. The message was in the form of a serial about a plantation family re-inforced with short 'announcements' and interviews. Take-home tapes and recorders were also made available on loan.

To evaluate the project 40 out of the 240 women on the plantation and 10 controls were interviewed. The test group scored higher than controls when asked questions about information on the tape. Almost all women liked the tapes and wanted them to continue. There were some behavioural changes linked to the tapes.

An interesting paper, but the experiment needs to be followed by a longer field trial in which supervision is less intense. In its present form, the intervention could not be replicated. The costs of a long term programme in which many tapes would have to be continually supplied should also be examined.

G08 da Cunha, S., Manoff, R.K., Icaza, S.J. & PAG Secretariat. Case
1976 histories in Mass Communication. *PAG Bull.* 6 (1):24-41 (NBL)

Mass communication campaigns promoting Balahar (a formulated food) and Modern Bread (enriched) in India, several nutritional messages including the use of iodized salt in Ecuador, Incaparina (a formulated food) in Guatemala and protein in Maharashtra, India are described.

Evaluation of these campaigns, which were carried out largely, but not entirely, by radio, showed that they can increase public awareness and alter behaviour to some extent.

Of special interest to those planning nutrition education campaigns using mass media.

G09 Devadas, R.P. Impact of nutrition education in an applied nutrition
1973 programme on nutritionally vulnerable groups of people.
Arch. Latino Americanos Nutr. 23 (4):435-444 (NBL)

The nutritional knowledge and behaviour of 22 Indian women was assessed using questionnaires and observations before and after they had received nutrition education and protein supplements for six months. A definite change in knowledge and food habits is reported.

Only change in knowledge was measured; the small numbers make the result inconclusive.

G10 Devadas, R.P. Four case studies. IUNS Workshop on Rethinking food
1978 and nutrition education under changing socio-economic
conditions. Dar-es-Salaam (from abstract in *Nutr. Plann.*
2 (4) no. 855)

Outlines studies in India in which nutrition education in primary schools, in a village and in women's clubs was assessed. The following results were reported: the school lunch programme was an excellent medium for nutrition education; the most effective educational method for school children was a puppet show and for homemakers was a demonstration; five day training increased nutrition knowledge in convenors of women's clubs; nutrition education given by these convenors led to improvements in knowledge, food production and some dietary practices.

G11 Devadas, R.P., Sarojini, K.S. & Rajakumari, S. Impact of nutrition
1981 and health education on the growth and development of
primary school children in selected areas of Tamil Nadu,
India. *Indian J. Nutr. & Diet.* 18 (1):1-8 (NBL)

Certain nutrition and health concepts were integrated into the curriculum of 660 schools, instructional materials were developed and teachers trained. The programme was evaluated by: testing the knowledge of the teachers immediately and 12-18 months after training; testing the knowledge of 4th & 5th grade students; measuring the weights and heights of 1 000 selected children before and after six months of the education.

There were some indications that teachers' knowledge had improved, many said they had improved their own dietary habits and the school meal. The majority of school children questioned said they had improved their health and nutrition habits and several, when examined, had fewer nutritional deficiencies. Weights and heights had increased.

The title of this paper is misleading as growth of children was only one parameter examined and development was not really investigated. There was little real evidence that nutritional status had improved but it seems that this programme may have improved teacher and children's knowledge. However, no controls were used so non-programme variables could have been responsible.

G12 FAO. Summary report of the results of an evaluation of the
1969 nutrition component of the FAO/UNICEF-assisted applied
nutrition programme in Lesotho. McNaughton, J. (draft)
(C.B. NBL)

The nutritional knowledge of 1 325 mothers in the ANP pilot zone and 523 mothers in a control area was assessed using questionnaires. Only those women who attended a village meeting were interviewed (although all should have been seen in their homes) and coverage ranged from 60-100% of the selected sample. 31-37% of the women in ANP zone had attended ANP nutrition courses. Many more (65%) of these women obtained 'high' scores for nutritional knowledge compared with women from both the ANP (42%) and control areas (37%) who had not attended courses. However, there were no differences in child feeding practices. More women from the ANP zone had home gardens, were members of a communal garden and reported their families ate eggs (no significance testing). There was no difference between the areas in the proportion of mothers who had attended gardening and poultry raising courses.

Results might be biased because sampling was not implemented as planned and coverage was low at some places. However, the indication that ANP training courses had had a positive impact was probably true.

G13 FAO/FFHC.AD. Motivating rural women in the Ivory Coast : an
1981 experiment. Fayossēwo, A.A. Ivory Coast National Committee
for Food and Development, Abidjan & FAO, Rome. 18p (F) (S)
(S238 37 LIB)

The pilot project launched in 1973 aimed to motivate rural women in household arts, nutrition, child care, family economy, civics, family relations, gardening and poultry raising. This education was carried out in 28 villages by 8 monitors (all with some education) giving practical work, demonstrations and talks.

The project was evaluated by the African Institute for Socio-Economic Development which concluded the original objectives of improving health and nutritional status had not been met. The report examines the reasons for this and concludes that these are a lack of planning for community participation and making no allowance for important activities of rural women (i.e. agricultural production, trading and crafts). Recommendations are given, which have been largely accepted, for improving the project.

Gives a brief but useful overview of the reasons for a project's failure.

G14 Foundación para la Educación Superior and Community Systems
1975 Foundation. Community experiments in the reduction of
malnourishment in Colombia: 1st year progress report 1974-75.
For USAID. Cali, Colombia and Ann Arbor, Mich. 212p
(from abstract in *Nutr. Plann.* 1 (1) no. 118)

Describes the theory and reports the results of the 1st year of a research project aimed at building interventions into the community learning patterns so that learning capability is improved (presumably to improve the nutrition situation). Gives anecdotal results of teaching students to discover a diagnostic procedure and apply it to their own situation.

Of limited usefulness.

G15 Gilmore, J.W. et al. Morocco : food aid and nutrition
1980 education. AID project impact evaluation report no. 8,
USAID 42p (Nutr. Plann. Doc. no. 1305. S73 199 NBL)

In 1975, CRS began introducing nutrition education along with their food distribution programme to mothers and children (526 kcal and 16 g protein). Between 1975 and 1978, 150 000 mothers and 300 000 children were reached. Practical lessons in nutrition and health care were given by especially trained village workers (not selected by the community) at social education centres.

The project was evaluated in 1980 by external AID staff using data from a previous CRS study, and programme records. In addition, 15 centres chosen partly by random sampling and partly for convenience, were visited and at each, 2-4 mothers were interviewed in their homes. Systematic observations were made of the education at the centres.

W/A data collected in 1978 indicated that, among children who had been in the programme 2 1/2 years (n = about 200 000) the rate of malnutrition (below 80% W/A) was 10% compared to a rate of 32% for those who had just joined the programme (n = 657). Age distribution and initial nutritional status were said to be comparable. In order to desegregate the effects of feeding and education, the weights of 728 children in the programme in 1978 were compared to those collected from their siblings when they had been of similar age and in the programme (which then had no nutrition component). The rate of malnutrition was 16% among the 1978 children and 34% among their siblings. Similar results were obtained when the length of feeding was matched. The authors conclude that both the feeding and education components have had a positive impact on nutritional status.

It is difficult to assess the validity of the conclusions. There is no discussion of non-programme variables, no statistical testing, and no details of the 'dosage' of food or education actually 'consumed'. There seems little real evidence that the rations had a positive impact. The report is, however, of interest because the subjective evidence strongly suggests that the centres influenced certain behaviours (including nutritional behaviours) of the mothers, that there was diffusion of information to non-programme women, and that the programme helped to 'liberate' women to some extent.

Also reported in Development Digest 8 (4): 72-81 1980.
See item D19.

G16 Gordon, G.M. An evaluation of nutrition education given to pregnant
?1972 and nursing women in six communities in the Upper region of
Ghana. (Thasis) Legon, Univ. Ghana, Dept. Nutr. & Food
Science. 207p (373 G65 NBL)

Nutrition education was given in the Bawku district by the health and social welfara services and churchas using 'conventional' methods (i.e. advice to groups or individual mothers, posters, demonstrations). The importance of special weaning foods, protein and fruit, earlier supplementary feeding and three meals a day was emphasized. Teaching took place in the hospital rehabilitation unit, at child clinics hald weekly or fortnightly and at three special four-day nutrition courses.

To evaluate the programme, socio-economic data, nutritional knowladge, dietary practices, and recall data on under-5 child mortality was collected by visiting 136 households in nine villages. The investigator worked 'out' from the chief's house and the most outlying homes were not included. Anthropometric data were collected from 494 children aged 0-60 months and also abstracted from 726 clinic cards. Mothers were divided into those who had been exposed to nutrition education on more than four occasions and those exposed fewer times (controls) (? not clear whether these groupings were used with all outcoma variables).

The results showed that mothers 'exposed' to nutrition education showed some significant improvement in knowledge but did not appear to be putting much into practice. There was no significant difference in their children's growth or in infant mortality. However, the 1-4 year/0-11 month mortality ratio was lower (1.20) among children of 'exposed' mothers than among the controls (2.30).

An enormous amount of data is presented but much does not seem relevant to the purpose of the thesis which was to measure programme affect. The evaluation design is never clearly described. It is difficult to discover, especially as there is no 'contents' page, how some of the data were collected. Sampling was non-random. It seems that education was given to all mothers and not only those pregnant or lactating as the title implies. The possible effects of non-programme inputs (e.g. health care) and other non-programme variables (e.g. characteristic differences between 'exposed' and control mothers) are not discussed.

Non-random sampling and non-matching of critical variables between 'exposed' and control mothers is unlikely to have altered the main result of the survey significantly. This is that nutrition education, when given as described, has no positive impact on child nutritional status and infant mortality. It seems likely that the reported improvement in nutritional knowledge is also valid.

See also Gordon, G. 197?. Nutrition education in the Bawku district in northern Ghana 1969-77. Univ. Sussex, U.K. IDS. (C.B. NBL)

G17 Griffiths, M. et al. Mothers speak and nutrition educators listen : 1980 formative evaluation for a nutrition communications project in Special Territory of Yogyakarta, Central Java, South Sumatra. New York, Manoff Internat. Inc. Vol. 1. 287p Vol. 2 164p. (Nutr. Plann. Doc. no. 1606. 374:612.39 G87 NBL)

The project was an educational component of Indonesia's World Bank funded Nutrition Development Project. Knowledge, attitudes, practices and problems were first investigated and educational materials then tested. Mothers actively helped define problems and devise solutions. Six radio spots and five 'action' posters (which were marked when mother had carried out defined behaviours) were used to carry messages about lactation, young child weighing and feeding.

Baseline studies were carried out in 328 poor homes in ten selected villages. An extensive questionnaire was used to collect this data which included dietary recalls. The radio spots were pretested and evaluated in 259 homes in six villages. On the whole, they were liked, believed and understood. A similar pretest and evaluation was carried out for the posters. This produced several suggestions for improvements.

These two volumes give in very great detail the method used to develop these six radio spots and five posters. This methodology should be useful to others developing nutrition education materials. However, it would be interesting to know how much this exercise cost, and what proportion was spent on technical expertise and consultants. A report on the impact of the spots and posters on behavioural change is awaited with interest. A summary of the reports would be useful to people who have not the time to read over 400 pages.

G18 Gueri, M., Jutsum, P. & White, A. Evaluation of a breastfeeding 1978 campaign in Trinidad. *Bull. Pan Am Hlth Org.* 12 (2):112-115 (LIB)

A six week breastfeeding promotion campaign was evaluated by interviewing new mothers two days, and four months after delivery. Radio messages were more often recognized than TV messages or newspaper posters. A relationship between knowledge of breastfeeding and media exposure was suggested.

Of interest to educators using mass media.

G19 Guthrie, G.M. et al. Reducing malnutrition by reinforcing improved 1980 infant feeding practices. (Nutr. Plann. Doc. no. 1494. Philippine C.B. NBL)

In two similar villages in the Philippines where undernutrition among young children was high, a 'rewards' system was introduced to encourage mothers to carry out five behaviours that would improve the nutritional status of their children. The reward in one village was the giving of 'coupons' for each behaviour carried out; these coupons were first used as tickets in a draw for corn or rice and later, at the mothers' suggestion, could be traded for small items such as soap, or food. In the 2nd village, a colour photograph of mother and child was given if the child gained or maintained satisfactory nutritional status. A third village acted as control

There were about 150 participants in each village (i.e. almost all the mothers in the area).

Both reward systems worked equally well. Growth of children in the two test villages was better than in the control village. (? significant). The author concludes that some kind of consistently applied promptly-given 'reward' is needed to supplement nutrition education and health care.

Although the differences in nutritional status between the reward and control villages do not seem to have been tested for significance it appears that the reward system did have a positive impact.

See also *Development Forum* 9 (3): 6-7 1981.

*G20 Heimendinger, J., Zeitlin, M.F. & Austin, J.E. Upper Volta case 1981 study of home-based community level weaning food development. In Nutrition interventions in developing countries. Study IV. ed. Austin, J.E. & Zeitlin, M.F. Cambridge, Mass. Oelgeschlager, Gunn & Hain. For USAID p79-112 (612.39 Au 711 Suppl. NBL)

The study examines the design, impact and cost effectiveness of an education programme that promoted a weaning food based on local foods in two districts in Upper Volta. In one district (Koupele) nutrition teaching was carried out by middle level home economics 'animatrices', in the other (Yako) by unpaid village level 'weaning food monitors'. Both categories of workers gave nutrition/health education talks and food demonstrations at least monthly. Both groups taught recipes for 'bouillie' (a smooth cereal-based weaning food). In Koupele, only one recipe was taught whereas in Yako, where the programme had been running longer, several more nutritious recipes were given.

The two programmes were evaluated by interviewing 40 mothers in Koupele and 62 in Yako. 24-hour dietary recalls and weights and lengths of their infants were recorded by teams from the Ministries of Health and Rural Development.

Results showed that Yako infants were significantly better nourished than those in Koupele. That this was due, to some extent, to the mothers' better knowledge and preparation of good 'bouillie' recipes was evidenced by the fact that more Yako mothers were able to give correct recipes and that Yako mothers gave several alternative recipes whereas Koupele mothers knew only one. Yako infants consumed 'bouillie' more frequently than Koupele infants. A cost effectiveness analysis was made. The authors consider the main reasons for the better results from Yako is that the monitors are from the village and thus have both more credibility and more opportunity for nutrition education.

Although the numbers involved in the study are small, and, as pointed out, by the authors, there are faults in both design (e.g. ambiguous questions) and implementation of the evaluation, the study does strongly indicate that home-prepared weaning foods can decrease the *incidence of malnutrition among infants, and that this can be achieved using low-cost village workers.*

See items B50 and G42.

G21 Hernandez, M. et al. Evaluación de las actividades de campo del
1979 plan educativo para la alimentación de la población rural.
Salud Pub. Mexico 21 (2): 135-143 (English summary) (NBL)

A nutrition education programme, covering 27 rural regions, aimed to improve child feeding practices, increase mothers' food consumption and diversify family diets is described.

The programme was evaluated in one community per region by interviewing a random sample of 50-60 families before the programme and six months after it had started.

About half the families had accepted new ideas on child feeding and adopted at least one new technique on hygienic food preparation. In the poorer areas especially, mothers were not always able to put the advice received into practice.

An interesting paper.

G22 Hoorweg, J. & Niemeijer, R. The impact of nutrition education at
1980 three health centres in Central Province, Kenya.
African Studies Centre, Leiden, The Netherlands. Research
Reports no. 10 65p (C:B. NBL)

The effects of nutrition education given by Ministry of Health Nutrition Field workers was evaluated in three ecologically different villages in Central Province. Ninetyone mothers with preschool children who frequently visited the MCH centre (four or more times in the previous six months) were compared to 83 'infrequent' attenders (three or less times). Their child nearest the age of two years was examined. The indicators compared were : nutritional knowledge; maternal food preferences; child's previous days food intake; child's nutritional status.

There were no significant differences in respect to these indicators between frequent and infrequent attenders, although the former seemed to have more knowledge about the correct age to start complementary foods. The reasons for these disappointing results are discussed.

In the conclusion the authors indicate that mothers do not, in fact, receive very much nutrition education. Thus it seems that the difference in 'consumption' between the two groups was very small and so it is hardly surprising that no statistical difference in effect was found. An initial operational evaluation might have suggested that this result was likely. However, in all other respects, this appears to be a well planned survey and the design, indicators and results are described in detail.

See item E12.

G23 Hornik, R. & Solomon, D. The role of communication in nutrition.
1978 Calif. Stanford Univ. Institute for Communication Research
109p For USAID (from abstract in *Nutr. Plann.* 3 (2) no. 1056)

Reports the results of a study in which USAID's communication activities in nutrition ara evaluated. Impediments to success of some programmes are related to a relative dearth of knowledge about nutrition planning in developing countries. It stresses that nutrition communication is at an experimental stage and care must be taken to choose goals which are both significant and achievable with current techniques.

G24 Laprida, O. & Undurraga, P. Lactancia materna : final report on the
1976 breast feeding pilot project. East Area of Health,
Santiago, Chile. 50p (s) (Nutr. Plann. Doc. no. 70,
C.B. NBL)

Following the project described in item G04, a new project was started in which group presentations and individual counselling on breast feeding was given at clinics to new mothers in Santiago, Chile by trained volunteers and nurses.

Breast feeding and weight data were collected from a sample of infants born before the project began (? n), from 1 536 infants in the project, from a random sample of 90 participators, and a sample of 70 control infants at nearby clinics.

Breast feeding rates were higher among project infants than controls; the former also had a lower incidence of serious health problems.

The results indicate that the project had a positive impact but little data on the comparability of the groups is given. There are also few details of the actual project.

G25 Low, D.I.D. Evaluating nutrition education programs on two Caribbean
?1970 islands. (Dissertation) Univ. California. 263p (last pages
missing) (Caribbean C.B. NBL)

Using anthropometric and food recall data from mothers and children it was concluded that ANP had been chiefly responsible for the improved food habits and better growth of the participants.

Lengthy document of limited relevance.

G26 Manoff, R.K., Cooke, T.M. & Romweber, S.T. Radio nutrition
1977 education using the advertising technique to reach rural
families; Philippines and Nicaragua. Washington, D.C.
Manoff Int. For USAID. 102p (from abstract in *Nutr. Plann.*
1 (2) no. 187.)

The effect of nutrition radio messages on maternal knowledge and behaviour was evaluated by obtaining data before and during the intervention from test mothers (and controls in tha Philippines).

and from health and community workers. Some changes in knowledge and behaviour had occurred. For details of evaluation design and implementation see Manoff Int. 1975. Changing nutrition and health behaviour through mass media, abstracted in *Nutr. Plann.* 1 (2) no. 179.

See item G43.

*G27 Matthews, C.M.E. et al. Education to overcome malnutrition in
1977 rural preschool children *Intern. J. Hlth Educ.* 20 (4): Suppl. 1-19 (NBL)

A nutrition education study was conducted in Tamil Nadu, India to test the hypothesis that the probability of action is related to: the perceived probability that the action will lead to a certain goal; the importance of the goal; the effort required to reach it. In three hamlets with a population of 1 155, an educational programme, which lasted two years, was carried out. This consisted of an 'information stage' (leaders meetings, film shows, drama, flash cards, exhibition, leaflets, tape, story telling, songs, group teaching), a 'motivation stage' (leaders meetings, NRC, feeding in nursery schools and prizes for nursery school children) and an 'action stage' (nursery school feeding, local industry, immunization primary health care). The educational aim of the project was to improve child feeding, and earning power.

The project was evaluated by a weight and questionnaire survey in the project area and in a similar control area (pop. 1 358) before and after the intervention.

Results suggested that the hypothesis was valid (although few behaviour changes were actually observed). The project had little effect on weights (partly attributed to non-programme variables) or village industry but had increased knowledge, rate of immunization and attendance at nursery school. The running costs were calculated as Rs 2.50 per family per month.

This appears to be a well planned and well evaluated project. However, it has high inputs in terms of trained and motivated staff and may not be replicable on a wider scale.

G28 McDowell, J. The Kayunga nutrition scouts project: an outline of
1977 a successful nutritional surveillance/prevention project in Uganda. IUNS Working Conf. at Nat. Inst. Nutr. Hyderabad 5p (Nutr. Plann. Doc. no. 417. C.B. NBL)

Twelve young people (trained and paid), each responsible for 400 homes, provided community wide home-based health surveillance and instruction on child care. Prevalence of under-nutrition dropped from 7.4% to 5.0% (? over one year) and cases of kwashiorkor were reported to have been reduced 'dramatically'. Project cost was $5 000/year.

Project also described in McDowell, J. 1978 Tackling malnutrition in Eastern Africa, UN Symposium (Nutr. Plann. Doc. no. 292).

G29 Minett, N. A successful health education program in West Africa.
1980 CARE/Sierra Leone 27p (Nut. Plann. Doc. no 1485, Sierra Leone C.B. NBL)

The report describes a project whose objectives were to develop health education materials and demonstrate positive health and nutrition behaviour change. A flip chart and booklet of 'small talks' was prepared using black and white photographs with the background blocked out. Data from sixteen villages were collected by questionnaire in 1977 and sixteen months later, in order to evaluate the impact of the flip chart. This included demographic and dietary data.

Just over 100 test and 30 control mothers were questioned at each survey. Results indicated that there had been a positive change in the percent of women boiling drinking water and drying dishes on racks but no real change in dietary practices. The author feels that the time was inadequate for this change to occur but otherwise concludes that the project was successful. The flip charts were well liked and are now extensively used.

The collection of dietary recall data by a single interview may not have yielded valid results. It seems that only some of the 'small talks' were evaluated - a more comprehensive study could have identified better which topics were successfully taught using this method and which were not. It could be that teaching at least ten topics introduced too many concepts at one time. The way in which the flip chart was used in the education session is only briefly described. Nevertheless, a useful study.

G30 Mukundan, S.R. Nutrition education through women's camps: an
1973 evaluation study. *Indian J. Home Science* 7 (1):1-6 (LIB)

To improve nutrition and food production among housewives in a ANP in Kerala, India, 314 3-day nutrition education 'camps' were held between 1969-1972.

To evaluate the impact of the camps, nearly 14 000 campers (out of a total 17 000) were visited at least one month after training by their local trainers. Data collected were checked by senior officers.

There had been a large increase (no statistical testing) in home gardens and livestock and an improvement in food consumption patterns.

Few details are given on how the data were collected and it is not known whether homes were actually visited before the education. However, the camps seem to have had some impact for at least one month.

G31 Munger, S.J. Mass Media and nonformal nutrition education: final
1978 report. Alliston Park, Virg. Synectics Corp. For USAID. 133p (Tunisia C.B. NBL)

To show how best to combine mass media and informal education, the study, carried out in Tunisia, aimed to evaluate the impact of each input. Pretested radio messages were beamed nationwide, and a 3-hour seminar on nutrition education was given to staff at 8 of 16 selected MCH centres. After 4 months, 942 mothers from all 16 MCH centres were interviewed and 24-hour dietary recalls conducted.

There was no evidence of changes in nutrition intake or behaviour, or of differences between those exposed to different inputs (i.e. radio and informal education from MCH staff).

The negative results are not surprising because: no baseline data were collected; 'informal education' input was extremely weak and radio listening habits were similar (thus all mothers had received virtually the same intervention); no data were obtained on the 'dose' of intervention received. This is an example of unsuitable evaluating design. However, the radio 'messages' became very popular and indicate a useful channel for nutrition education.

For comment see Zeitlin, M. Synectics review team critique for AID/DS/N of Projects outputs from contractors and memo from B. Hornik to T. Meyer and M. Frazaõ. (S.B. 2 h NBL)

G32 Nat. Instit. Nutr. Hyderabad. India Population Project (IPP):
1981 evaluation of nutrition education activities. Annual
report 1980 p210-213 (NBL)

Describes the nutrition education component of the IPP which aimed to improve dietary practices among small children and pregnant mothers, and to increase usage of health and family planning facilities. Talks, discussions, demonstrations and mass media were employed. To evaluate the programme, 120 mothers who had attended education 'inputs' at least 6 times, 145 mothers from the same village who had not participated and 67 mothers from a village receiving 'inputs' 2 or less times were interviewed and a preschool child examined. More mothers from the first group had improved knowledge of some of the topics taught and said they were putting some of this into practice than the other mothers.

There is no attempt to assess the impact of the different components of the education programme and the results do not seem to have been tested for significance. Hopefully, this study will be published in more detail as it does appear to have had a positive impact in some areas, and the results could be useful in other similar programmes.

See items D26, D28 and J28.

G33 Omawale & Rodriques, A. An evaluation of the role of
1977 preschool clinics. *E. Afr. med. J.* 54 (1): 38-42
(Nutr. Plann. Doc. no. 1295. S.B. 2h NBL)

The growth rates of children attending a preschool clinic in Tanzania, at which there was a vigorous nutrition education programme, showed no correlation to their average numbers of clinic attendances or mean period of contact with the clinic. The authors conclude that nutrition education gives no protection from malnutrition, that poverty is probably the more important reason for poor child feeding and that the clinic can be most effectively and economically assigned a role in nutrition surveillance rather than intensive education.

The authors conclusions on the important role of poverty in the etiology of malnutrition are not questioned but their case against the clinics nutrition education component would be stronger if they had also examined growth rates of children whose mothers had not been exposed to nutrition education. The difference in attendance, length of contact with clinic between the fast and slow growing groups did not appear to be large.

G34 Praun, A.S. Nutrition education programmes and their contribution
1981 to development at local level. M. Sc. report, London Univ.
(mimeo) 72p (to be published ? under new title in *J. Hum. Nutr.* in 1982)

A review and assessment of the literature on nutrition education including evaluations of programmes.

G35 Quimpo, C.F. & Valdecanãs, O.C. Radio-print synchronization and
1979 participation in the nutrition school of the air.
Phil. J. Nutr. 32 (2) : 99-107 (NBL)

To disseminate nutrition information, radio broadcasts were aired once a week on a woman's programme and printed information was included in a weekly family magazine. The information by the two media was synchronized and ran for a total of 16 weeks. The audience participated by filling in enrolment coupons in the magazine. A test was given at the end of the series with questions both broadcast and printed. Answers were returned to the Food and Nutrition Research Institute who had organized the programme. Certificates of 'attendance' were awarded.

In order to determine whether radio and print together increased knowledge, attitude and practice (KAP), more than these media separately, and to find out if KAP were related to socio-economic status, 114 of the 130 graduates were interviewed. No baseline data were collected.

Participants were mainly low-income housewives. Scores for KAP tests were high in 82-100% of graduates; the use of only one media had a greater impact than the synchronized approach, even though the enrollee was more likely to complete all lessons if both media were used.

There are several factors that make it difficult to draw definite conclusions from this interesting project - these include the lack of controls and baseline data. However, the results do suggest this approach can yield positive results and, as the author suggests, warrant a further investigation under more controlled conditions.

G36 Ramsey, F.C. Protein-energy malnutrition in Barbados : the role
1979 of continuity of care in management. J. Macy Jr. Found., New York. 173p (616.39 R141 NBL)

In one parish in Barbados, over a period of 18 months, malnourished children were visited at home by nurses and their mothers assisted with child care, hygiene, food preparation and advice on family planning and nutrition. The prevalence of 2° and 3° PEM (Gomez classification) decreased from 11.6 to 5.7 per 100 children aged under two years. Hospital readmissions of PEM also decreased.

Little mention is made of non-programme variables nor were results tested for level of signifiance. However, the data do suggest that the home visiting of 'at risk' children reduces the prevalence of moderate or severe PEM in this area.

G37 Valdecañas, O.C., Quimpo, C.F. & Baloloy, S.B. Operation Nutribooth :
1980 a feasibility study. *Phil. J. Nutr.* 33 (1): 48-56 (NBL)

Describes booths set up in four locations in Luzon in the Philippines at which nutritional information was given to the general public by volunteers with some nutritional training. Staffing problems caused two booths to close down. Through interviews with a sample of the public 1-4 months after initiation of the project it was found that most clients were low-income, middle-aged housewives who had received advice on meal planning, budgeting and marketing and preparation of new recipes. A booth at a hospital gave advice on diets for various diseases. A study on behaviour changes is being undertaken.

Although the data on the impact of the booths are rather limited, and maybe unrepresentative, the description of this type of channel for nutrition education may be of interest in other developing countries.

G38 Velarde, H.P. The malnutrition prevention project of the Bureau
1979 of Agricultural Extension. *Nutrisyon* 4 (1 & 2): 30-31 (NBL)

The malnutrition prevention project in the Philippines, started in 1975, aims to prevent malnutrition among 0-18 month old children through education of the mothers. The introduction of local supplementary foods at or below five months of age is encouraged as are food production and family planning. The weights of children aged 6-18 months are plotted on weight charts and mothers attend homemaker classes regularly and 'graduate' after 120 hours of tuition. An infant food mix of rice, fish or beans, and oil and sugar is prepared in some areas. By 1978, over 46 000 children were enrolled.

The average % W/A (local standard) of 18 month children in one province before the project was 80%. In 1976 the average % W/A of 18 month olds in the project was 82.4%. In 1977 the figure was 82.7% for those with complete weight records and whose % W/A at 6 months had been over 80% (n = 2656). Among the 187 children whose weights had been less than 80% W/A, 2° mal was reduced by 37%, and 3° by 47%.

The authors conclude that the project had a beneficial impact. However, no information is given on how the data were gathered, the drop-out rate or whether the results could have been affected by non-project variables. The small increase in average % W/A reported has not been tested to see if it is statistically significant. Average % W/A is not a sensitive way of measuring community changes in nutritional status.

G39 Whitehead, F.E. Nutrition education research project : Report of
1970 Phase 1. Washington, D.C. USAID (mimeo) (S.B. 2h NBL)

Purpose of the project was to analyse reports on nutrition education research from 1900 to 1970. Results dealt primarily with changes in knowledge rather than in food consumption and nutritional status. The effectiveness of education in improving food habits and nutrition is summarized in 32 statements.

In spite of its age, this is still a useful document for those planning nutrition education.

G41 Wulf, J. Vitamin A consumption increased in Guatemala. Brigham
1980 Young Univ. Abstract of oral presentation at Soc. Nutr. Educ., Montreal, Canada. 1980. (S.B. 10b NBL)

A 5-week educational campaign among 100 rural families using home lessons and visual aids presented by US college students apparently resulted in a significantly increased consumption of several vitamin A rich foods when measured immediately after the campaign. Intakes were higher than baseline one year later.

Of limited use because few details of the methodology are given.

*G42 Zeitlin, M.F. & Formacion, C.S. Nutrition interventions in develop-
1981 ing countries : Study II Nutrition education. Cambridge, Mass., H.I.I.D. For USAID. 349p (612.39 Au 711 Suppl. NBL)

Part of a manual (see item D04) intended to provide guidance on selecting interventions for preventing malnutrition in the preschool child. The first two chapters give an overview and description of nutrition education. Evaluation is described in detail in chapter 3, the first part of which examines the effectiveness of nutrition education in improving nutritional status at reasonable cost. The evidence for this is mainly indirect because the impact of education is difficult to separate from other interventions. However, the authors cite some cases (e.g. from the Philippines item G43, Upper Volta item G20) where education did appear to be correlated to improved nutritional status. The important characteristics associated with cost-effective education were considered to be : absence of conflicting commercial information; programmes operated at community level; combination of face-to-face and mass media channels; education of all those involved in nutrition policy and implementation. The remainder of this chapter deals with evaluation methodology (see item B50). Chapter 4 presents a case study of radio education in the Philippines (see item G43).

Quite a good review of the subject although only a small number of nutrition education programmes are examined in the section on evaluation and no mention is made of the effectiveness of nutrition education in schools. The only case study occupies nearly 1/3 of the monograph.

*G43 Zeitlin, M.F. & Formacion, C.S. Case study : using radio to teach
1981 enrichment of rice porridge in the Philippines. In Nutrition interventions in developing countries : Study II Nutrition education. Cambridge, Mass., Harvard Instit. Internat. Devel. For USAID . p228-325 (612.39 Au 711 Suppl. NBL)

Describes a pilot education programme in the central Philippines in which six 1-minute radio spots gave specific nutrition messages for one year. The programme was evaluated by questioning before, during and after the project, a sample of 700 women. Another sample of 100 mothers of small children was interviewed in depth once. Over the 12-month experiment a significant number of mothers in the test area carried out the behaviours recommended (i.e. enriching the child's gruel with oil, fish and green vegetables). Mothers' reluctance to give these foods to young children was reduced.

This project has been described in great detail and cost effectiveness is discussed. It is an important study for nutrition educators planning to use radio.

See also Cooke, T.M. & Romweber, S.T. 1977, Radio advertising techniques and nutrition education : a summary of a field experiment in the Philippines and Nicaragua. Manoff International Inc. (Philippines C.B. NBL) and item G26.

See also all items in section H and *D28, *E08, *E11, *E12, *E17, E18, E20 *E27, F06, F08, F11, F13, J05, J11, J43, *N27.

4.5 Nutrition rehabilitation centres

H01 Beaudry-Darisme, M. & Latham, M.C. Nutrition rehabilitation centres:
1973 an evaluation of their performance. *J. trop. Pediat. & Environ. Child Hlth* 19 (3):299-332 (NBL)

A literature review of NRC performance in Uganda, Peru, Haiti and Guatemala which concludes that, in general, children had improved their nutritional status and mothers had acquired new knowledge during attendance at NRC. To evaluate long term impact, the records of 249 children who had attended NRC for more than two months (experimental group) and 67 who had attended less than one month (controls) at seven centres in Haiti and nine in Guatemala were examined and weights retaken around 12 months after discharge. Mean % W/A of experimental group had not improved since discharge and only in Haiti was it significantly higher than that of the controls. Mortality however was lower. Costs are discussed.

A useful review.

H02 Beghin, I. & Viteri, F. Nutrition rehabilitation centres: an
1973 evaluation of their performance. *J trop. Pediat. & Environ. Child Hlth* 19 (4):403-416 (NBL)

By reviewing the literature and by personal observation and experience, the performance of NRCs were evaluated. The conclusions are that NRCs are an inexpensive and effective way of rehabilitating the malnourished child, and that they are needed also as an operation base for a comprehensive nutrition programme and as sites for demonstrations and personnel training.

A useful overview of the situation at that time. Many of the recommendations for NRC operations are still pertinent today.

*H03 Brown, R.C., Brown, J.E. & Teeter, R.A. Evaluation of a nutrition
1980 center program in rural Africa. *J. trop. Pediatr.* 26(1):37-41 (NBL)

Evaluates a NRC in Bulape, Zaire after one year's operation. Each of the 106 children were matched for age, sex and nutritional status with a control. Only boys showed improved W/A and W/H during three months attendance at center but this did not continue after discharge. Reasons for the poor results are discussed.

Appears to be a well designed evaluation.

See also Brown J.E. & Brown R.C. 1979. An evaluation of nutrition centre effectiveness by measurement of younger siblings. *Trans. Roy. Soc. Trop. Med. Hyg.* 73(1):70-73.

H04 Coopar, E., Haaddan, G & Lawranca, C. Caribbean children thriving
1980 and failing in and out of hospital. *J. trop. Pediat.* 26(6):232-238 (NBL)

Sixty eight malnourished children aged 3 months-3 years in the main hospital on St. Lucia, W. Indies in 1975/76 were randomly assigned to different rehabilitation regimes (variants being type and duration of diet) and then weighed monthly for six months, then again at the end of 12 months. Follow-up data were obtained on all but two children.

Five children died but most of the rest showed limited catch-up growth. However, neither the duration of high-energy in-patient feeding nor the weight gained in hospital predicted the weight 6 or 12 months later. The authors conclude that because of the overwhelmingly larger variables effecting growth when they return home, intensive high energy feeding in hospital has little long-term effect. Nor could any advantages of keeping in contact with the families through monthly weighings for the first six months be demonstrated since there were similar growth rates in the second six months when the children were not seen. The authors conclude that there is a great need for more nutrition education and help in solving some personal and social problems, and little for a central unit for nutrition rehabilitation or large-scale food donations to children.

This is a quite well-designed trial with some interesting results. However, some of the recommendations made might be questioned, in particular, the suggestion that NRC are of limited use (the authors themselves point to the need for more nutrition education). There is little hard evidence quoted to support some conclusions (i.e. the low impact of food aid, the limited effect of keeping in touch with the family and there being no need for high-energy feeding).

*H05 Dagnelie, P.C. Mobile nutrition rehabilitation of malnourished
1979 children: organization, costs and results of rehabilitation at home, with regular visits, in small fixed groups, to a nutrition rehabilitation unit in Embu, Eastern Province, Kenya. Wageningen, Netherlands Agric. Univ. 176p (612.39 (676.2) D 13 NBL)

This report describes an experimental 'mobile' nutrition rehabilitation unit started in 1974. Groups of up to 15 clinically malnourished children and their mothers were transported to the NRU once a fortnight for a whole day during which the child was weighed, examined (and referred if necessary to the nearby health unit) and fed two meals of local ingredients, cooked and often supplied by the mothers. There were formal and informal nutrition education sessions for the mothers on nutrition and the child's progress. Take-home rations of DSM and CSB (300-500 g/2 weeks) were distributed when available. The group of children stayed in the programme until the majority were 'fit' and their mothers had improved nutrition knowledge and practices, usually after 2-3 months. Home-visiting was carried out when possible.

The operations and costs of the NRU were examined in 1975. The % W/H, AC, clinical status, food consumption (by 24 hour recall) and mothers' food knowledge and practices were studied among 34 of the 36 children from one location who had been successfully rehabilitated 2-16 months previously, and 10 of the 17 children who had dropped out of the rehabilitation course.

The number of children admitted during 1974 was 157. The 'drop-out' rate was 35%; transport was often irregular; mothers indicated that they preferred the mobile NRU to residential care or mobile MCH clinics; costs were 9-25% of those of rehabilitation in hospital or residential NRU. Long term results suggest the mobile NRU was not as effective as residential NRU regarding weight increase after discharge. There appeared to be some improvement in food consumption at follow-up; little diffusion of nutritional knowledge had spread from the mothers into the community. The author makes several recommendations for improving the programme.

The author points out most of the limitations: the low numbers; the fact that only a sample from one location was examined; the unknown quality of some data such as age and attendance; the lack of a good control group and, consequently, the unknown effect of non-programme variables.

No firm conclusions can be based on the results from the small sample of children examined. However, the data on costs and the operational activities of the NRU are important. The advantages to the families of this type of nutritional rehabilitation make the results of particular significance to nutrition and MCH planners.

H06 Fougère, W. & King, K.W. Capitulation as a key ingredient to the
1975 eradication of severe malnutrition in children. *J. trop. Pediat. & Environ. Child Hlth* 21 (5):240-248 (NBL)

This describes the authors' initial evaluation of NRC in Haiti and their rethinking on the subject. They report that of the 120 mother/child pairs enrolled per year, 16% failed to improve at all, 9% failed to improve growth after discharge and 75% improved and maintained recuperation.

A useful paper.

See item H13.

H07 Frankish, J.G. Nutrition rehabilitation in Transkei: an evaluation
1978 *S. Afr. med. J.* 53 : 507-511 (S. Africa C.B. NBL)

The report evaluates the impact on the children's health and diet, and on the knowledge and practices of their guardians, of NRCs attached to two hospitals in the Transkei. Eighty eight children who had spent a minimum of two days in NRC in 1975/76 were followed up 6-14 months later in their homes. 80 children were found. 16 children who had been hospitalized with PEM but who had not attended NRC were used as controls. At follow up children were examined and the guardians questioned; 26% of the NRC and 30% of the control children had died; there was no significant difference in weight between NRC and control children nor in clinical condition. However, more of the NRC group had started gardens than the controls. The home diets of children from one NRC were better than controls or children from the other NRC; the nutritional knowledge of guardians was better in the NRC than control groups, and most claimed they were disseminating their knowledge. The author doubts the immediate practical benefit of the NRC in view of the rather poor general condition of the children at follow up and the high death rate. Some recommendations for improvement of the NRCs are made.

This is a useful paper for those planning or running NRC and the follow up study seems to have been well conducted although the small number of controls available makes valid comparisons difficult.

H08 Githagui N. Butula family life training centre (FLTC)
1980 (Busia district) of the Ministry of housing and social services, Kenya. African Medical and Research Foundation, Nairobi. 22p (C.B. NBL)

Fifty three mothers, out of a selected ninety, who had attended the FLTC with their malnourished children were interviewed in their homes in 1979. The 3-week residential course aimed to improve family health and welfare and to treat sick children. The objectives of the study were to improve the effectiveness of the centre.

2% of the children (probably severe cases) died in the centre and 29% afterwards. Although mothers' nutritional knowledge had improved there appeared to be little change in home diets. The reasons (largely economical) why mothers might find changes difficult to make are discussed. Several recommendations, mainly of ways in which communication and education may be improved are given.

Although the scientific basis of this report is somewhat weak - e.g. ? how representative is the sample - it does appear to pinpoint aspects of the FLTC where improvements are needed as well as the difficulties of improving family welfare in that part of Kenya.

H09 Government Erskine Hospital Report on nutrition rehabilitation
1977 centre and its activities, village child care centres and evaluation. Madurai, Tamil Nadu, India. Nutrition Rehabilitation Centre, Govt. Erskine Hospital, 22p (*Nutr. Plann.* Doc. no. 271. C.B. NBL)

The NRC seems to have been successful in saving the sight of vitamin A deficient children and in rehabilitating cases of PEM.

Insufficient details to be able to judge the validity of the results.
See item H22 for a later report on this NRC.

H10 Gressard, A. Le centre nutritionnel de Ruhengeri (Rwanda) et
1974 l'alimentation infantile au Rwanda. *Medecine Tropicale* 34(3):427-444. Summary in English.
(from abstract in *Nutr. Abstr. & Rev.* 46 no. 7076 LIB)

The nutrition rehabilitation centre at Ruhengeri was considered by the author to have played an important role in educating parents in better nutrition. Methods used to evaluate performance are not mentioned in the abstract.

*H11 Hoorweg, J. & McDowell, I. Evaluation of nutrition education in
1979 Africa : community research in Uganda, 1971-1972. ASC Communications 6, The Hague, Mouton Publishers. 158p
(373 H76 NBL)

Describes the evaluation of nutrition education programmes in the I.P. & O.P. clinics in Mwanamigumu NRC and Luteete health centre O.P. clinic. Nutritional status of the children and mothers knowledge and attitudes were measured among random samples of regular and first attenders (for more details see items H19 and H20).

The teaching had had a positive effect on both knowledge and attitudes of the mothers and this correlated (although not always to a significant degree) with an improvement in nutritional status of their children. Differences in the amount and type of changes between the three programmes is explained by social and economic factors. For example, the studies showed that there were important differences between rural and urban groups in the social processes that promoted recovery. The authors feel that knowledge of these processes is important if interventions are to be adapted to the populations in need.

Although, for practical reasons, the 'post-test only' model was used, great care was taken to ensure test and control groups were drawn from the same population. All results and correlations, although not always statistically significant, indicated that the education was being effective.

Even though the study was carried out ten years ago, the results are still very pertinent especially for those evaluating NRC programmes.

H12 King, K.W. Nutrition education of the poor can be effective.
1972 *Indian J. Nutr. & Diet.* 9 (6):351-356 (LIB)

An overview of the effectiveness of NRC which concludes that when well run the health benefits are highly significant and lasting in their impact.

A brief overview without many details.

*H13 King, K.W. et al. Preventive and therapeutic benefits in relation
1978 to cost; performance over 10 years of Mothercraft Centers in
Haiti. *Am. J. clin. Nutr.* 31 (4):679-690 (NBL)

Mothercraft centres in Haiti, run by paraprofessionals, had been operating since 1964, mostly in small villages. Local foods were used and all facilities and equipment were within the means of a typical family. 30 children below 75% W/A were selected at a time and attended six days a week for 3-4 hours; mothers worked at the centres one day/week. Emphasis through informal education was on improved feeding and sanitary care.

The centres were evaluated by reviewing reports of previous surveys and data on weights, oedema and mortality from several centres, most of which were operating routinely in the health services. A sample of children with poor responses was traced and examined. Weight data on siblings and incidence of malnutrition were also examined. Analyses of costs were reviewed.

The following results were reported from previous studies or from data collected by the authors:
- treated children had a significantly improved anthropometric and bio-echmical indices, compared with matched controls;
- 84% of 1 291 'treated' children grew faster than the Harvard 50th percentile;
- 85% of 1 291 'treated' children exceeded the Harvard W/A median;
- results from several centres indicated that 85% of those admitted responded satisfactorily; about 90% of non-responders had diagnosable infections;
- in a sample of 25 children, all had maintained satisfactory weight gains 21 months after discharge; on admission average % W/A of these children was 65%, at the same age siblings had average of 82%, no such differences were seen in control pairs. (item 23).
- 3 follow-up studies showed improved W/A being maintained 6-26 months after discharge;
- 34% of 331 children were growing at or above Harvard 50th percentile at follow-up (? period) in spite of annual inflation rate of 20-25%;
- in an area covered by Mothercraft centres, numbers of cases of severa PEM admitted to hospital decreased by 50% from 1968 to 1975, no decrease occurred in control area;
- in one area the prevalence of well nourished children was 14% when centre opened, 19% when it closed five years later and 26% two years later;

In 1975, the average total annual cost per centre was $4 034. This provided therapy for 105 children and protection for 306 siblings. Thus life-long protection per child cost approximately $10.

Details of methodology are too sparse to allow comment on individual results. However, the large number of studies cited give somewhat similar results and this suggests that the overall conclusions are probably valid.

The data support the authors' conclusion that Mothercraft centres are partially successful in controlling preschool malnutrition but that they cannot always overcome the health problems of the child or the lack of motivation or financial constraints of the family. The relatively low cost of protecting a child from malnutrition is due to the targetting of inputs on the most 'at risk' families. More sophisticated centres are unlikely to be feasible.

H14 Kraut, H. et al. Rehabilitation of undernourished children in Tanzania
1978 using locally available food. *Ecol. Food Nutr.* 6(4):231-242
(NBL)

49 undernourished children were fed all their meals in a day-care centre 6 days a week for 88 weeks (1 300 kcal and 29 g protein). 41 children grew faster than a local (Baganda) standard for 74 weeks. Methionine supplementation of the diet did not noticeably effect growth.

A carefully controlled trial with results that are relevant to other on-site feeding programmes.

H15 Lamptey, P.R., Florencio, C. & Picar, B. Comparison of nutriwards
1981 and nutrihuts in the northern Mindanao region (region X)
of the Republic of the Philippines
Fd & Nutr. Bull. (UNU) 3 (1) : 8-16 (NBL)

Nutrition rehabilitation in the Philippines is carried out in hospital-based units called 'nutriwards' and rural health centre-affiliated units called 'nutrihuts'.

In this study, in Mindanao, the impacts of the units on W/A changes were compared. Information on all 397 preschool children admitted in 1978 to 5 out of the region's 8 nutriwards and 7 of the 11 functioning nutrihuts was examined. 152 of 325 children from 7 of these nutriwards and 3 nutrihuts were followed-up at home (non-random selection).

Nutriwards did not differ from nutrihuts with respect to % W/A at admission, discharge or follow-up, or to weight gains during or after confinement. Patients in nutrihuts stayed longer and had lower mortality rates during and after confinement. 24% of children were self-discharged. Nutrihuts tended to attract cases from the rural areas. The authors point out that only 0.1% of the cases of 2^{o} and 3^{o} PEM in the Philippines are treated in NRC.

The limitations of the study, most of which are pointed out by the authors, were the lack of verification of the nutriward and nutrihut records, the non-random nature of the sample because of security and accessability problems, and inadequate addresses, and the lack of quality control in collecting weights. It is not stated how long after discharge the children were followed-up.

Because of the limitations described above, it is difficult to compare the impact of nutriwards and nutrihuts although this paper does give a good 'overview' of the two types of NRC and points out the limited coverage they give. Data on relative costs would have been useful.

H16 Nutr. Rev. Evaluation of the impact of mothercraft centers on therapy
1978 and prevention of malnutrition. *Nutr. Rev.* 36(9):275-278 (NBL)

A review of the Haitian mothercraft centers which concludes that educational programmes can, under the right conditions, diminish the toll of undernutrition.

A rather brief review.

See also items H06 and H13.

H17 Ojofeitimi E.O. & Teniola, S.O. Evaluation of nutrition rehabilitation
1980 centre in Ile-Ife, Oyo State, Nigeria. *Wld Rev. Nutr. Diet.*
35:87-95 (P494 W89 NBL)

Groups of 10-14 children and mothers spent 5-7 hours weekly (? for 12 weeks) at the NRC. During this time nutrition /health education was given - children were weighed and examined and mothers and staff prepared and fed a meal.

A random sample of 30 children aged 9 months - 4 years from the 43 attending the clinic was examined over 3 months (? data). By the 12th week of attendance children had gained an average of 1.26 - 2.5 kg. There was some change in numbers with a head/Chest ratio of more than 1. After education the percent of mothers who believed lack of good food was the reason for PEM increased from 10% to 90%; prevalence of infections decreased after 3 months attendance. However, there was little change in the mothers' behaviours at home.

The authors' conclusions that the NRC improved growth rates and decreased death rates are difficult to validate since no controls were used; the weights of children of all ages were averaged together, the sample was small and there is no mention made of drop-outs. The use of head/chest ratio becomes progressively less sensitive after the age of 1-2 years. No information is given as to how the anthropometric or KAP data were collected.

H18 Sajogyo, P. Les centres de réhabilitation nutritionnelle en
1977 Indonésia. *Carnets de l'enfance/Assignment Children*
38:57-63 (English and Spanish summaries). (NBL)

In order to improve incomes and nutritional status NRCs were organized in 6 villages with the help of village women who had been trained for one week. Demonstrations were given on local food supplements. After two months, there had been an average weight gain among 80% of preschoolers of 1.5 kg. as well as increased awareness of nutritional needs among mothers.

No controls were used, nor is the age range of the children known. However, the very rapid increase does suggest that the programme may have had some impact.

*H19 Schneideman, I, Bennett, F. J. & Rutishauser, I.H.E. The nutrition
1972 rehabilitation unit at Mulago hospital, Kampala: development
and evaluation, 1965-67. In Amman, V.F. et al. eds.
Nutrition and Food in an African Economy Kampala, Makerere
University p242-254 (612 Am11 NBL)

Evaluates the effects of nutrition care, especially nutrition education, given to in and out-patient mother/child pairs at Mwanamigimu NRC. Educational methods included discussion groups and demonstrations for OPs supplemented with a 'barraga' of other methods (e.g. cooking and hygiene practices, visits to markets and clubs) for IPs. 1 kg of DSM reinforced with calories was given to OPs at each attendance (of variable frequency). The cost of rehabilitating a mild to moderate case of PEM was Shs 34 as an OP but 22% of OPs did not gain weight over 4-8 months and only 34% were gaining at a rate that could eliminate their weight/age deficit. Rehabilitiation of IPs was significantly more effective but cost Shs 680 for a 6 weeks stay (compared with Shs 840 for a 2 weeks stay in the main pediatric ward).

Mothers showed a rapid increase in nutrition knowledge in the first 3 weeks as IP but no significant increase after 4 weeks. When followed up (period not stated) 89% of children were 'doing well' and there were no relapses. 90% of mothers were using a special pot for boiled water, 60% had made a child latrine, 50% had a new vegetable plot and 65% were cooking separately for the child (all new behaviours recommended by NRC), 55% had 'taught' neighbour about child feeding. A third of these were community leaders who did not have malnourished children but who had been admitted to NRC as an experiment.

Although more details of the evaluation study would allow a better assessment of the results it is known that meticulous records were kept and the results are considered valid. Some indication as to which of the many inputs were most effective or efficient would make the results more useful to those with more limited resources.

See item H11.

H20 Stanfield, J.P. ed. Recent approaches to malnutrition in
1971 Uganda. *J. trop. Pediat. & Environ. Child Hlth* 17 (1) Monogr. 13:25-60 (LIB)

Discusses NRC evaluation in Uganda.

A useful overview of the situation at that time.

H21 Stanfield, J.P. The Luteete family health centre: nutrition
1972 rehabilitation in a comprehensive rural development strategy. In Amann, V.F. et al. eds. *Nutrition and Food in an African Economy*, Kampala, Makerere Univ. Press p286-299 (612 Am 11 NBL)

In a rural Uganda health centre, where there was strong emphasis on low cost services and community participation, around 3/4 of . the malnourished children showed good progress during the rehabilitation period of 2 months and for at least 3 months longer.

Small numbers (less than 100) limit the value of the data.

See item H11.

H22 Venkataswamy, G., Cobby, M. & Pirie, A. Rehabilitation of
1979 xerophthalmic children: a follow-up study in southern India. *Trop. Geog. Med.* 31 (1) :149-154 (LIB)

Of the 275 malnourished children (213 with xerophthalmia) admitted to the NRC of Government Erskine Hospital, Madurai, India in 1975, a total of 106 were traced 2-17 months later. (20 had died in hospital, 21 could not be traced and no attempt was made to find 128).

Of 94 children admitted with severe xerophthalmia, which would be expected to lead to total blindness, only 20% were discharged totally blind. Of 34 of these 94 children who were followed up, 4 were totally blind and 73% had gained enough vision to lead an independent life. On the whole, vision had improved between discharge and F.U. The only dietary advice that appeared to have been followed was the incorporation of green vegetables into the child's diet. Weights of 74% of the children whose admission weights were below 50% had improved.

Although more than half the children admitted were not traced the prevalence of eye signs in the total and traced groups was similar on admission and thus the success indicated in treating them appears valid. The contribution of an improved home diet to this was not possible to assess.

See item H09.

H23 Webb, R.E., Fougère, W. & Pepillon, Y. An evaluation of the
1975 educational benefits of nutritional rehabilitation centres
as measured by the nutritional status of siblings.
J. trop. Pediat. & Environ. Child Hlth 21 (1):7-10 (NBL)

A significant improvement occurred in W/A of 25 malnourished preschoolers while attending a Haitian NRC for 4 months. When seen 21 months after discharge, weights had further improved. The admission weights of these children were significantly lower than those of their younger siblings when subsequently weighed at the same age. No similar differences were found between control (non-malnourished) children and their siblings.

This appears to be a well controlled study although a better control group might have been malnourished children who were not treated at NRC.

See items H06, H13 and H16.

See also items *D21, *D28, *D35 and E18.

4.6 Feeding programmes for mothers and young children : on-site

I01 Chávez, A. & Martínez, C. The effect of maternal supplementation
1979 on infent development. In 'Effects of maternal nutrition on infant health : implications for action'. Report of workshop in Guatemala, 1979. *Arch. Latinoamer. Nutr.* 29 (4) Suppl. 1 : 143-153 (NBL)

The paper reports the effects of supplementing (300 kcal and 20 g protein) 41 pregnant Mexican mothers and comparing their lactation performance and characteristics of their offspring with that of 39 similar unsupplemented mothers. After birth, 17 matched mother-child pairs drawn from the above sample were followed. Test mothers continued to be supplemented and test children were supplemented from the age of 3 months.

Supplementation resulted in significantly higher birth weights and some differences in body morphology; milk production increased in quantity and dilution; growth during the first 3 months was higher than among children whose mothers had not been supplemented (but not significantly). The authors suggest that maternal supplementation had a positive effect because of the low nutritional level of the control group (energy consumption less than 2 000 kcal at end of pregnancy).

Although the sample was small, this was a carefully controlled experiment with significant results. The study was carried out about ten years ago and more modern methods of estimating breast milk production are now available. Use of these methods might effect the values given for breast milk volume.

See D18.

I02 Devadas, R.P., Belambal, M. & Ushakumari, N. Impact of an applied
1971 nutrition programme on the nutritional status of preschool children in a village. *Indian J. Nutr. & Diet.* 8 (5):260-263 (LIB)

Data were obtained from 25 Indian preschool children living in an ANP village and receiving on-site supplements of 28 g DSM (reconstituted)/day and 3 eggs/week and also from 25 'identical' but unsupplemented controls living in a non-ANP area. Compared to controls the supplemented group had higher intakes of energy and protein (? significant), decreased prevalence of clinical signs of PEM, significantly higher final weights and heights and slightly higher haemoglobins (non-significant). 'Definite' improvements (? how assessed) were observed in eating habits, social development and attendance.

Lack of detail on 'dose' of supplement received and on procedures used for some of the data collection and for selection of control groups makes validity of results difficult to assess. Other ANP inputs (e.g. nutrition education) probably affected outcome.

See also Devadas, R.P., Vasanthi, M.N.M. & Sheradambal, B. 1972 The nutritional status of selected preschool children in an applied nutrition programme. *Indian J. Nutr. Diet.* 9 (9):1-4 (LIB)

I03 Didonet, V. Atendimento integrado de educação, saúde, nutrição e
1980 envolvimento comunitário do pré-escolar, através de metodologia de baixo custo e ampla cobertura: síntese de exposição. Paper presented at World Assembly of Preschool Education, Quebec, 1980. (from reference in item D37)

It is reported in item D37 that preliminary results of a feeding programme combined with organised play and stimulation for 24 000 preschoolers in Pernambuco, N.E. Brazil, show that the rate of scholastic failure of these children is less than half that of children outside the programme.

*I04 Dutra de Oliveira, J.E. et al. Reaching preschool children through
1980 a community food program. *Ecol. Food Nutr.* 9 (4):223-228 (NBL)

All the 2-6 year old children (255) living in a low income periurban area in Sao Paulo, Brazil, were given 200 ml fresh local pasteurised milk twice a day at local food stores for 9 months. Children used their own mugs and drank the milk at the store. Regular educating meetings were held for store owners, children and mothers.

Previous studies had shown that this supplement improved the nutritional status of similar children. There was a drop-out rate of 45% mainly due to families moving from the area. Attendance among the remainder was nearly 80%. Absenteeism was related to children not liking the milk, and to distance of the home from the store. Mothers were often too busy to attend educational meetings. The authors consider the advantages of the programme were: the food was consumed by the vulnerable children; distribution points were near the home so mothers did not have to accompany their children; the local production-to-consumer food chain was used; the cost of the programme per capita per month was about half the retail cost of a similar quantity of milk; store keepers were co-operative because they received a small fee and the children often bought goods from the store. The educational component was considered essential. Other similar programmes have also demonstrated the feasibility of this approach - in recent ones milk stamps have been sold to families to decrease paternalism.

An interesting programme – it would have been useful to know the actual impact on nutritional status of the regular attenders and whether this was affected by age, initial weight or attendance of family at the educational meetings. Although hygiene was said to be 'quite good' there are no details of how this was assessed nor any mention of whether or not the programme affected the incidence of diarrhoea. No reason is given for why the programme was not continued. More details of the subsequent programmes are awaited.

I05 Gopolan, C. et al. Effect of calorie supplementation on growth
1973 of undernourished children. *Am. J. clin. Nutr.*26 (5):563-566
(NBL)·

This reports, with less segregation of the data, the experiment described in item I12. Additional results were that when 82 of the 'fed' children and 32 controls contracted measles, the weight gains of the former remained normal while the controls lost weight.

Part of a well controlled trial with important results.

I06 Kaur, P. & Bhatt. C.M. Effect of supplementary feeding on the
1979 nutritional status of pre-school children. *Indian Pediat.*
16 (12) : 1091-1036 (India C.B. NBL)

In order to assess the impact of feeding local inexpensive recipes to undernourished pre-school children in the Punjab, 46 children in one village were matched for sex and weight and height for age and divided into test and control groups. A 24-hour dietary recall revealed all were deficient in energy and vitamin C. Six nutritious recipes were served mid-morning for six days a week for six months (285-323 kcal, 4.7-9.9 g protein and 3.7-19.9 mg iron) to the test group. These were not thought to substitute for the home diet. Gains in height and weight and haemoglobin level were significantly higher for the test group than the control group over six months.

This seems to be a well conducted experiment yielding positive results. There is little discussion on how mothers could be persuaded to provide these extra meals regularly for their children, and no data on costs.

*I07 Klein, R.E. et al. Effects of maternal nutrition on fetal growth
1976 and infant development. *Bull. Pan Am. Hlth Org.* 10
(4):301-316 (?S) (LIB)

In an experimental study in Guatemala, two types of on-site supplement (163 kcal and 11 g protein, and 59 kcal and 0 g protein) were made available to 405 pregnant women from four poor villages and to their subsequent offspring. Records of intake were kept. The proportion of women who produced low weight babies was significantly lower amongst those who consumed more than 20 000 supplementary kcals (average 125 kcal/day) than amongst those who had consumed less. At 36 months of age the offspring who had received larger amounts of supplementary energy were bigger than those who had received less, and they performed significantly better in physchological tests.

A well designed study with important results.

See also, Lechtig, A. et al. 1972. Influence of food supplementation during pregnancy in birth weights in rural populations of Guatemala. Proc. 9th Int. Cong. Nutr. Mexico 2:44-52, Karger, Basel, 1975. (612 (063) In81 NBL)

and Habicht, J.-P. et al. 1973. Relationships of birth weight, maternal nutrition and infant mortality. *Nutr. Rep. Int.* 7:533-545 (NBL)
and Lechtig, A. et al. Food supplementation during pregnancy, maternal anthropometry and birth weight in a Guatemalan rural population. *J. trop. Pediat.* 24(4):217-222 (NBL)
and Lechtig, A. & Klein, R.E. 1979. Effect of food supplementation during pregnancy and lactation on infant mortality, morbidity and physical growth. *Arch. Latinoamericanos Nutr.* 29 (4) Suppl. 1:99-142 (NBL)
and items D08, D11, D14, D17, D18 and I08.

*I08 Martorell, R. & Klein, R.E. Food supplementation and growth rates
1980 in preschool children. *Nutr. Rep. Int.* 21(3):447-454 (NBL)

In rural Guatemala children aged 0-7 years in two villages received a daily on-site supplementary drink (163 kcal & 11 g protein) (Atole) while in another two villages they received a drink containing only 59 kcal (Fresco) (see item I07).

The mean weight and height growth rates were higher in the villages receiving Atole than in the Fresco villages. Growth rates were more affected in the younger age groups probably because, at this age, the growth of similar unsupplemented children is retarded. The supplements had less effect on the older children whose growth rates tend to be closer to reference children. The results suggested that energy, rather than protein, was the limiting nutrient.

A well designed study with useful results.

See item I07.

I09 Periera, S.M. & Sundararaja, R. The effect of a high energy food
1975 supplement on the growth of preschool children. *Indian J. med. Res.* 63 (1):156-161 (LIB)

Forty five poor Harijan children aged 2-5 years are reported to have maintained satisfactory growth rates when given an on-site meal of 1 600 or 2 900 kcal every day for 6 months even though substitution occurred in most homes. Attendance was regular and plate waste low.

No controls were used and apparently no attempt made to identify possible non-programme variables. Separate results for children receiving meals of different energy content are not given. However, the positive outcome is probably due mainly to the feeding programme.

I10 Rajalakshmi, R. & Ramakishnan, C.V. Formulation and evaluation
1977 of meals based on locally available foods for young children. *Wld Rev. Nutr. Diet.* 27:34-104 (NBL)

Feeding trials of locally available foods are described. In one, the impact of an on-site breakfast and lunch, prepared from wheat, gram, groundnuts, a little DSM, oil, jaggery and fruit and vegetables (620-850 kcals & 25-35 g protein), was evaluated among 25 2-5 year old children in one Indian village near Baroda. 20 similar children whose parents did not support the feeding centre (the village had two factions) were used as control.

There was a significant improvement in nutritional and biochemical status among the 'fed' group. Similar results were obtained when other local foods were substituted for DSM and fruit.

In another trial, take-home packets of processed foods made from wheat and gram and vitamin A fortified oil were given to 18 8 month-3 year old urban Baroda children for seven months. 16 similar children were used as controls. 'Fed' children showed a slightly greater improvement in nutritional status (not significant) than controls.

The results of the take-home feeding seem indecisive. The authors point out the difficulties of extending these trials to cover large numbers of children.

*I11 Rao, D.H. et al. Evaluation of the Special Nutrition Programme
1975 in the tribal areas of Andhra Pradesh. *Indian J. med. Res.* 63 (5):652-660 (LIB)

In order to bridge the 'food gap' of poor tribal and slum children aged 1/2 - 6 years, the State Government, supported by the National government, started, in 1972, supplying an on-site meal of local foods (300 kcal and 8-10 g protein) for 300 days/year. After nearly two years the programme was reaching nearly 140 000 beneficiaries.

To avaluate the programme, anthropometric and clinic data were collected from 1 201 children living in 51 villages where the programme was operating and 707 children from 50 control villages, matched for socio-economic status, sanitation, educational and medical facilities. Dietary recalls were collected on about 25% of the sample (? how selected). No baseline data were available.

Mean attendance rate at feeding centres was 86%; usually the whole supplement was consumed although the rations were not of standard size. Substitution for home diet did not occur. 'Fed' children were significantly taller and heavier; in all tribal groups a higher proportion of 'fed' children had weights above 90% W/A and 75% W/A than did controls and they had fewer clinical signs of PEM. There was a wide variation among tribes as to the extent the programme had affected weight, probably due to variations in habitual diet.

Results were not desegregated by age or length of time in programme. There is little description as to how procedures carried out and it is not clear if all children in the village were covered by the programme and evaluation. Although 'fed' and controls were not matched by age, the control of non-programme variables appears adequate enough to give useful results.

On-site feeding appears to have resulted in improved nutritional status of preschoolers. Data on costs and impact on different age groups would have been useful.

See 1978, National Seminar on Special Nutrition Programme. Nat. Instit. Publ. Coop. & Child Devel. (612.39 (545.5) N19; 612.39 (54) N19 NBL)
and items D28, D31, J11, J12 and J32.

*I12 Rao, D.H. & Naidu, A.N. Nutritional supplementation: whom does
1977 it benefit most? *Am. J. clin. Nutr.* 30 (10):1612-1616
(NBL)

In an on-site feeding trial 211 Indian 1-5 year olds were fed (310 kcal and 3 g protein) for 276 days over a 14 month period and their final weights and heights compared with those of 82 controls matched for sex and original weight and height. Attendance rate was 85%, all had consumed total ration, there was no substitution in home diet. The original sample was 303 'fed' and 109 control children, drop-outs occurred because of illness, irregular attendance and migration. Results were as follows: children initially classified as chronically malnourished or nutritional dwarfs gained more weight and height than controls; children with short-term malnutrition gained more weight but difference was not significant due to low numbers; normal children grew at the same rate as controls; children initially below 90% W/A gained significantly more than controls. Supplemented children whose original weight was less than 60% W/A gained more than those whose weight had been more than 60% W/A.

A well controlled trial and in spite of the high drop-out rate it seems reasonable to conclude, like the authors, that the results are more likely to be due to the high energy supplements than to non-programme variables.

See item I05.

I13 Swaminathan, M.C. et al. An evaluation of the supplementary
1970 feeding programme for preschool children in rural areas
around Hyderabad City. *Indian J. Nutr. & Diet.* 7:342-350
(LIB)

Preschoolers in two villages were given on-site meals of local foods (300 kcal and 10 g protein). Two-thirds attended regularly. One year after start of the progrsmme, clinical and anthropometric indices from 150 of these children, and from 200 children from control villages, showed that beneficiaries had significantly fewer signs of PEM and higher mean heights and weights. Results were not desegregated by original nutritional status. Substitution had not occurred, acceptability of supplement by children was good and the majority of the community liked the programme.

Since baseline data from the children were not collected at beginning of feeding, non-programme variables could account for the results.

I14 WFP. Inter-agency evaluation report on WFP-assisted project
1977 Bangladesh 2226. Evaluation service, Rome. 60p (C.B. NBL)

The project is described in item J17. This report summarizes the findings of items J17 and J18 and also gives the results from scheme 'E' which provided two cooked meals every day to slum children in Dacca (900 kcal and 20 g protein). The percent of children below 80% W/A fell from 54% before the programme to 14% a year later (n = 1 070)

Although few details are given and non-programme variables are not discussed the dramatic results are probably attributable, at least in part, to the controlled on-site feeding of these very malnourished children.

See also end of item J18.

I15 Winslow, C. et al. Impact of a feeding progam on preschool
1980 children with severe malnutrition. (letter) *Arch. Latino-Americanos Nutr.* 30 (2):273-278 (NBL)

Seventy three severely malnourished children in a large longitudinal study in Guatemala received an on-site supplementary drink (350 kcal). Although W/H improved, the special feeding did not improve percentile W/A or H/A; there was a greater positive change in children with lower initial anthropometric scores.

The study emphasizes the importance of assessing growth in terms of percentiles as well as percentage of median.

See items I07 and I08.

See also all items in section H and *D01, *D05, *D08, D10, D12, D15, *D18, *D21, D26, *D28, *D32, *D33, D34, *D35, D36, E01, *E17, *E27, F16, *J02.

4.7 Feeding programmes for mothers and young children : take-home

J01 Allen, S.R. & Koval, A.J. Food aid for supplementary feeding :
1979 a case study from Egypt. CRS, Cairo, presented at a
conference on 'the interface problems between nutrition
policy and its implementation'. Mass, Cambridge, MIT.
Nov. 1979 23p. (Index NBL)

The report describes the national 5-year supplementary take-home feeding programme for 'mothers' and children aged 6-36 months begun in 1975 which used USAID foods and was run by the government and CRS. The goals included improvement of nutritional status of the vulnerable group through food distribution (to 700 000 recipients by 1980) and nutrition education given at health centres.

The authors felt it was too early to know whether there had been any positive impact on nutritional status. In any case, lack of baseline data on the recipients and of a built-in evaluation system as well as the confounding effect of altered communications and socio-economic circumstances, will make evaluation of project impact difficult.

The problems associated with distribution of the food, the use of WSB, extra work load imposed on health staff, and production and distribution of Supramine are also discussed.

Although there are virtually no hard evaluation data the discussion on the implementation of a nation-wide feeding project should be of interest to those planning and implementing similar programmes.

See also item J14.

*J02 Anderson, M.A. CARE Preschool Nutrition Project : Phase II report.
1977 New York, CARE. 150p (S.B. 2h NBL)

The objective of the CARE preschool nutrition programme was to improve the nutritional status of beneficiaries. In 1976 it was operating in 18 countries and reaching, mainly through special feeding centres, 5.5 million beneficiaries. On-site and take-home supplements (320 kcal and 17.4 g protein) of PL 480 Title II foods (and sometimes local foods) were distributed to 0-5 year olds together with some health care and nutrition education.

Evaluation was carried out by an external CARE team with local support. 20-30 feeding centres in five countries (selected to represent each type of CARE feeding programme) were randomly selected. At each, the first 50 mothers seen were interviewed and the weight, height and arm circumference of one of her preschool children was measured. Similar data was obtained from 50 non-participating mothers and children drawn from a similar nearby community (the same controls sometimes being used for more than one centre). 25 mothers from each of the 5 'most efficient' and the 5 'least efficient' centres were interviewed in-depth in their homes. Comparisons were made between participants and non-participants, and between recent and long-time attenders.

Rations were said to reach beneficiaries 9 out of 12 months; attendance rates averaged 72-95%; take-home rations were shared (the target child receiving about 1/2 the rations); rations substituted for 37-69% of home diet in Costa Rica, India and Dominican Republic; older children tended to eat more of the ration; the proportion of 'fed' children who had eaten on-site or take-home ration on the day before the survey was 80% and 50% respectively.

The report concludes that the programme had the greatest impact where: prevalence of malnutrition among newcomers was high; a high proportion of the ration was consumed; morbidity was lower; mothers were not working, were introducing solids by 6 months, and/or had some nutritional knowledge. The author suggests the following modifications be tested: priority be given to 0-3 year olds, malnourished preschoolers and mothers of child-bearing age; more calories be provided by increasing calorie density of the ration; more health and environmental health services and education be provided; nutritional impact be monitored.

Detailed description of the design is given. Control groups were not always well matched and non-programme variables may have accounted for lack of positive results. Classifying 'newcomers' as those attending 0-5 months (within which time catch-up growth could occur) might also have led to smaller-than-real differences between new and longtime attenders.

Although it is difficult to know whether the little positive impact found was real or due to confounding variables, the conclusions and recommendations appear to be justified and highly relevant to similar projects.

For a useful discussion and summary of this report see item D05. The project is also discussed in Austin, J.E. 1981. *Nutrition programs in the Third World : cases and readings*. Cambridge, Mass. Oelgeschlager, Gunn & Hain.

J03 Asia Research Organization. Evaluation of the targetted
1976 maternal child health program in the Philippines.
(from reference in item D34)

Reports a weight deterioration among supplemented children who were not severely malnourished probably due to substitution.

See item D04.

J04 Becroft, T. & Bailey, K.V. Supplementary feeding trial in New Guinea 1965 Highland infants. *J. trop. Pediat. & Environ. Child Hlth* 11 (2):28-34 (LIB)

No differences in mean weight or length gains were found between 46 breast-fed infants given take-home rations (101-284 kcal and 10-11 g protein) for 12 months, and 33 controls.

Difficult to know if results are valid because the amount of ration actually consumed was not monitored and there was a high drop-out rate (83 children initially being enrolled).

J05 Beghin, I.D. et al. The integration of nutrition into the health 1972 service of N.E. Brazil : supervised supplementary feeding. *Ecol. Food & Nutr.* 1 (4):295-302 (NBL)

Describes the evaluation of a nutrition programme which included nutrition education to mothers, and a take-home supplement given every two weeks for four months (291 kcal and 34 g protein) to regularly attending malnourished children and their under-5 year old siblings. Non-attenders and those losing weight were home visited. Persistent poor attenders were excluded. Of the 428 children sampled, 31% dropped out during the study but the rest had a 95% attendance rate. Authors state that normal growth was maintained in these children and 'many', who were initially malnourished, recuperated.

The high drop-out rate and lack of hard data makes it difficult to assess these results.

*J06 Cantor Assoc. Inc. The Tamil Nadu nutrition study : 1. Nutrition 1973 intervention: a study of take-home dry food as a distribution system, Vol. II Section C and 2. A study of feeding programs in Tamil Nadu, Vol. II Section D, Part II. For USAID. 150p and 82p (Microfilm 612.39 (548.1) Si 1 NBL & Reports Off. WFP).

1. To determine the effectiveness of take home food distribution, 602 children aged 6-30 months from 7 villages in rural blocks in Coimbatore district, India, were given monthly rations of CSM and sugar (375 kcal and 20 g protein for those over 7 kg body weight and 1/2 rations for those below) for 1 year distributed through the balwady (kindergarten) system. 516 children from 10 villages were controls. 61% of test and 44% of control children attended regularly. Virtually all food reached the home, but because of sharing and substitution, test children only increased energy and protein intake by 20% and 33%. However, the weight (but not height or haemoglobin) gains of test children aged 9-24 months were significantly greater than controls.

This appears to be a well controlled trial, authors consider the test and control groups to be comparable and representative although attendance rates were rather low. Results were not desegregated by initial nutritional status.

2. The nine existing feeding programmes, reaching 12% of preschoolers and 52% of primary school children, are described in terms of planned numbers of beneficiaries, programmed foods and costs. Delivery systems were considered effective but considerable substitution occurred. Costs of delivering 100 kcal in each programme is given. Problems and recommendations for improving and evaluating the programmes are discussed.

A useful overview but no data on nutritional impact.

J07 Capone, C., Jacob, F & O'Laughlin, A. Catholic Relief Services : 1978 nutrition intervention program for the drought areas of Kenya (1975-76). *Disasters* 2 (4):255-258 (LIB)

The nutrition intervention programme initiated by CRS in three drought striken dioceses in Kenya in 1975 is described. This consisted of registering all children under 5 years, monitoring their growth and distributing rations. Due to difficulties with transport and AID policies, the rations supplied were not considered by CRS to be sufficient. The programme was evaluated by analysis of Master charts on which the weights of all children were plotted monthly. The percents of children with weights below 80% W/A (or W/H) tended to increase rather than decrease. However, malnutrition and deaths are likely to have been averted by the programme since the drought continued over the period of feeding. The operation proved that a selective, effective programme can be operated efficiently.

Little hard data on which to judge the validity of the conclusions although they seem reasonable.

J08 Checchi and Co. Food for Peace : an evaluation of PL 480 Title II 1972 Vol. 1 and 2. Washington, D.C. For USAID. 230p and approx. 400p (Reports Office WFP)

Volume 1 describes the global assessment of the programme using available documentation and interviews, and gives a summary of policy and operational recommendations. Evaluation of impact covers feeding methods at maternal and child health units, school feeding, food for work, other child feeding and other types of food programmes. Volume 2 describes evaluations in the Philippines, Malaysia, Colombia, the Dominican Republic, Morocco, Ghana, Indonesia and Ceylon (Sri Lanka).

Very comprehensive documents but based largely on limited and rather subjective information gathered from recipients and are probably of limited relevance now.

*J09 Christiansen, N. et al. Effects of nutritional supplementation during
1980 pregnancy upon birth weight : the influence of pre-supplementation diet. *Nutr. Rep. Int.* 21(4):615-624 (NBL)

Take-home supplements were given to 226 urban slum families in Bogatã, Colombia from the start of the mothers' 3rd trimester of pregnancy. 230 families acted as controls (see items J21 & J22). The supplement as consumed by the mothers provided 500 kcal and 29 g protein. Dietary recalls showed that protein intake of all the supplemented mothers increased significantly but there was a significant increase in energy intake only among those women whose presupplementation diet contained less than 1 500 kcal. All supplemented mothers gained significantly more weight than the controls. However, only those infants whose mother's energy intakes had been more than 1 500 kcal before supplementation had significantly higher birth weights than the controls.

A well designed study, the results of which suggest the importance of improving diets of chronically underfed mothers throughout or even before pregnancy.

See items D08, D17, D18, J21, J22 and J39.

J10 Delgado, H. et al. Study of the effect of different nutritional
1979 interventions on physical growth, morbidity and infant mortality (Patulul). INCAP Annual Report 1979 p127 (S)
(P2151 In 7 NBL)

On thirteen coffee plantations in Guatemala, baseline data on growth, diet, socio-economy, morbidity and mortality of small children and 'mothers' were collected from 1977-79. Four groups received a supplement of 250 kcal/day as a 'cookie'; one a supplement of 7.5 g 'ideal' protein as improved maize and one group a supplement of both 250 kcal and 7.5 g protein as common maize and beans. Results should be reported in future annual reports.

Although no results are yet available, this appears to be a well controlled trial that should yield interesting data.

J11 Devadas, R.P. et al. Studies on Special nutrition programme (SNP):
1977 1. Background Information of the beneficiaries under SNP
11. Growth studies on 1 121 children receiving the supplementation in Coimbatore City
111. Spot feeding vs. Take home feeding
IV Effectiveness of a nutrition education programme among the beneficiaries of SNP
Indian J. Nutr. & Diet. 14 : 61, 123, 193, 227
(Volume missing in NBL)

No details available.

See items I11, J12 and J32.

J12 FAO. The special Nutrition Programme (SNP). In Selected
1979 nutritional intervention programmes in Tamil Nadu (mimeo)
Devadas, R.P. Rome, FAO. p12-54 (612.39 (548.1) D 49 NBL)

The SNP was started in 1970 in the urban slums and tribal areas of Tamil Nadu, India, run by the State's Department of Social Welfare and supported by the Central Government and CARE. The objective was to improve nutritional status of preschoolers and mothers by providing daily on-site supplementary meals. Beneficiaries were selected from backward or poorer families. The ration was 75-80 g special bread or 'Balahar' (a local weaning food) (300 kcal and 11-15 g protein) for 300 days/year. Most rations were taken home. At start 80 000 children were reached in 280 centres (mostly primary schools). During 1977-78 250 000 children and 27 000 'mothers' at 940 centres received rations.

The objective of the evaluation was to assess the impact of feeding on the growth of preschoolers. Heights and weights of 1 121 regular attenders of SNP at five (selected for convenience) out of the 18 centres in Coimbatore City were measured. Measurements were repeated after six months. The means and increments for each year were compared to All India and Tamil Nadu references. The mean increments of the 190 children who ate on-site were compared with those of 190 children who took rations home.

Mean heights and weights (grouped by age) and mean increments were similar to values from All India and Tamil Nadu references. Mean increments for height and weight for 190 'on-site' feeders were 'greater' (no statistical tests) than for the 190 who took rations home.

There were no controls and no information on: how long children had been in programme; their nutritional status at first time of measurement; criteria used to 'group up' ages; distribution of ages within age group; distribution of measurements (only means given); whether the on-site and take-home groups were matched for age and sex and initial nutritional status level; who took the measurements or by what procedures. Numbers examined are small compared to size of programme; no sampling is mentioned. Appear to be no drop-outs.

Due to the factors mentioned above it is difficult to know if the SNP had a positive effect and is not possible to extrapolate these results to evaluate the whole programme. Although on-site feeders grew faster than those taking rations home this could be due to other factors, such as differing ages or nutritional status.

See items D28, D31, I11, J11 and J32.

J13 FAO. Nutrition aspects of WFP-assisted project Malawi 525
1979 (Expansion) 'Feeding in public health centres' based on work of Atkins, M.C. Nutrition Consultant. 30p (C.B. NBL)

The report discusses the nutritional aspects of the WFP-assisted feeding project which supplies food aid to 'mothers', young children and selected hospital patients. Data were gathered by questionnaire and visits to health units in 1978. The main problems identified concerned selection of beneficiaries, measurement of rations, period of supplementation, supplies and storage and preparation of DSM. When the weight gains of 111 initially underweight children from three nutrition clinics were examined only 52 had gained weight more rapidly than normal.

As the report points out, non-programme variables could influence these results and a more scientific study is required.

J14 Field, J.O., Burkhardt, R & Ropes, G. Supplementary feeding in
1981 rural Egypt : the health system in action. *Food Policy* 6 (3) : 163-172 (NBL)

The management, at local level, of the national supplementary feeding programme of the Egyptian Ministry of Health, was examined. It was found, by questioning the head doctor at a sample of 130 health units distributing food, that: allocation of supplements was not linked to nutritional status, weight, health check-ups or nutrition education; distribution was not at regular intervals over appropriate time spans and was often carried out after clinic hours; little effort was made to ensure that the food was consumed by the vulnerable children. It was concluded that a major upgrading of the system was required before this ambitious programme could improve the nutritional status of 'at risk' children.

The analysis of the problems in this programme may be of relevance to those responsible for other large-scale feeding programmes organized through national health systems. Information gathered 'on-the-spot' as well as by questionnaire would perhaps have yielded more insights into the difficulties of the local health units and staff.

See also item J01.

*J15 Hakim, P. & Solimano, G. *Development, reform and malnutrition in*
1978 *Chile*. Cambridge, Mass. MIT Press p33-60 (616.39 H12 NBL)

The origins and development of the national milk distribution programme is described. The organization, costs and ulilization of the programme during 1970-73, when all children under 15 years and 'mothers' were eligible for 1-3 kg dried milk per month, is discussed in detail.

The results of various studies showed that: coverage ranged from 54% for 'mothers' to 90% for school children; most households had a high opinion of the milk and used the full ration but in 58% it was shared among all family members; 73% households reconstituted the milk incorrectly. The conclusions reached were that: the effects of the milk on improvements in infant mortality and nutritional status cannot be separated from those of improved health and sanitary conditions; the available data do not indicate that the programme had caused a decline in breastfeeding; the programme helped stimulate a milk industry; it had some educational impact, had heightened concern for nutritional problems and stimulated research. The programme is discussed in relation to the country's economic and political situation.

An important book for nutrition planners, particularly those concerned with supplementary feeding.

See Chetley, A. 1979 *The baby killer scandal,* London, War on Want. p126-131 (NBL) and Hakim, P. & Solimano, G. 1976 *J. trop. Pediat. & Environ. Child Hlth* 22:186 and Hakim, P. & Solimano, G. 1975 Supplemental feeding as a nutritional intervention : the Chilean experience in the distribution of milk. *MIT Internat. Nutr. Plann. Program. Discussion paper* no. 2 and item J33.

J16 Horner, M.R., Stinton, N.L. & Pringle, D.J. Contributions of
1981 international food aid to diets of Nicaraguan children.
Ecol. Food Nutr. 10 (4) : 203-211 (NBL)

24-hour dietary recalls were obtained for 176 randomly selected children living in 10 villages in 1977. Later recalls were collected for three consecutive days on a selected sample. About 12% of food intake in non-breast fed infants was from food aid items (food-for-work programme). The authors consider the food aid programme was successful and beneficial.

One of the few studies in which the effect on consumption of food-for-work rations have been measured in small children.

J17 Institute of Nutrition and Food Science. Nutritional surveillance
1977 of WFP project 2226 for vulnerable group feeding in
distressed areas of Bangladesh. Univ. Dacca. 67p
(Bangladesh C.B. NBL)
and Nutritional surveillance of WFP project 2226: preliminary report. Methodology And Results obtained from anthropometric measurements of beneficiaries repeated in 2-3 consecutive rounds under scheme 'A'. Univ. Dacca.
FP 5/2 BSD 2226/EVAL 11p and 9p (C.B. NBL)

Project 2226 aimed to improve the nutrition status of mothers and 0-10 year old children through 10 different schemes. Scheme 'A' which had most beneficiaries (357 000) and which supplied wheat and DSM or FPC (? nutrients) to the most needy in the most distressed areas, was evaluated during 1976-77. All children attending, on the selected days, 73 randomly sampled distribution centres in seven sampled sub-divisions (out of 34) were weighed and measured on 2-3 occasions over 4-9 months. A socio-economic and dietary recall survey covered a 10% sub-sample. Procedures were standardized but amount of supervision and sample coverage is unclear.

Over 8 000 were measured (over 3 000 were measured twice) out of a selected sample of 10 000. Results are somewhat conflicting with the proportion whose W/H was less than 80% decreasing slightly between weighings at some centres and increasing in others. Consumption of rations by beneficiaries was probably low due to sharing, occasional shortages of foods and poor acceptability of some items.

Reasons for non-attendance at surveys not detailed but included illness; this could bias results. Non-programme variables are not discussed. Difficult to draw conclusions but appears that project had little nutritional impact.

*J18 Institute of Nutrition and Food Science. Nutritional surveillance
1979 of WFP project 2226 for vulnerable group feeding in
distressed areas in Bangladesh. Univ. Dacca 119p (C.B. NBL)

See item I17 for a description of project 2226[1/] From 1977, Scheme 'A' was restricted to providing take-home rations to 'hard core' groups of mothers (1 517 kcal and 62 g protein) and 0-10 year old children (75 kcal and 31 g protein) in 3 sub-divisions only. Distribution was irregular and sometimes rations were reduced.

External evaluators attempted to weigh and measure all 9 343 child beneficiaries at 57 of the 260 distribution centres (stratified sampling) on 3 occasions over a 6 month period in 1977/78. Documentary evidence of age was not available. A socio-economic profile of the population was made.

Because of poor attendance only 50% of the sample was seen at the first, and 37% at the third survey. Only 15% attended all 3 surveys. Prevalence of wasting (<80% W/H) decreased between 1st and 3rd survey from 17% to 6% for all children, from 30% to 12% for 0-5 year olds and from 19% to 6% for the 1 415 followed longitudinally. Decrease in prevalence of stunting (<90% H/A) was from 58% to 52%. A significant positive correlation occurred between price of rice and prevalence of malnutrition.

Evaluation design where a project covers all the vulnerable population in a wide area and where weights cannot be routinely recorded is difficult as the effect of non-programme variables cannot be assessed. Additional problems here were the low sample coverage, high drop-out rate and lack of data on amount of rations received or consumed. The quality of data collection is not known. The use of 90% W/H, used by the authors, as a cut-off point for malnutrition seems high and results are more positive if 80% is used.

In view of the poor food situation at the time of the surveys it seems likely that the improvements in nutritional status are due to the project. However, because sample may be unrepresentative, results are inconclusive.

1/ Although the evaluation of schemes 'B' and 'F' are reported, WFP considered that operational difficulties in the sampled centres rendered the results unrepresentative.

See also WFP/CFA 1978 Interim evaluation summary report : Bangladesh 2226. WFP/CFA 6/7 Add. 11., 1978 (C.B. NBL) and WFP/CFA 1980 Interim evaluation summary report : Bangladesh 2226 WFP/CFA 10/6 Add. A4 (C.B. NBL) which comments that the surveys (reported in items J17 and J18) do not lead to any convincing results. However, the amount of food aid available is so small in relation to the food shortages that much change in nutritional status is unlikely to occur.

See items I14 and J17.

J19 Ministry of Plan Implementation, Sri Lanka. Thriposha and 1980 biscuit programmes. In Nutritional status, its determinants and intervention programmes interim report submitted to the government. Food and Nutrition Policy Planning Division, Publ. no. 5 p49-69 (C.B. NBL)

Thriposha, a supplementary food made (in 1980) from Title II instant corn soya milk, and local maize and soya, is distributed free through clinics to anaemic 'mothers', malnourished children aged 6-72 months and hospital patients. The ration is 1 500 g per month (? nutrients).

Observations on the programme were based on regular returns as far as can be ascertained from the report. Important findings were: selection criteria were seldom observed in practice; only about 50% of the target beneficiaries are being reached; average amounts distributed per person were about 75% of the recommended ration; thriposha was considered a family supplement rather than a weaning food, it is therefore unlikely to have had any impact on preschool nutritional status; it boosted attendance at immunization but not prenatal clinics.

The method used to evaluate the programme was not described probably because this is only an interim report. However, the provisional results are of interest to those concerned with the production of formulated foods.

See item J23.

The school biscuit programme is described in item L12.

*J20 Mittal, S. & Mahesh, C.G. Evaluation of a supplementary feeding
1980 programme through take-home system. *J. trop. Pediat.* 26 (2):50-53 (NBL)

A weekly take-home supplement (200 kcal and 8 g protein) was given for one year to 201 randomly selected 6 - 23 month old undernourished rural children in Uttar Pradesh, India. 125 similar children acted as controls. The mean collection rate of the food was 75%. There were no significant differences in the mean weight or height increments of the test and control groups. The authors consider that the main reason for the supplement to have no positive effect on growth is because it is shared among the family members.

This trial was part of a larger population research study and appears to have been carefully designed and carried out. The results suggest that take-home supplements are unlikely to be of direct nutritional benefit to undernourished small children from large low-income families.

*J21 Mora, J.O. et al. Nutrition supplementation and the outcome of
1978 pregnancy. III Perinatal and neonatal mortality. *Nutr. Rep. Int.* 18 (2):167-175. (NBL)

In an experimental study, a take-home supplement (856 kcal and 38 g protein) was given to women from 226 poor Colombian families in their last trimester of pregnancy. Actual intake improved by 133 kcal and 20 g protein. Other family members were also supplemented. When pregnancy outcome was compared with that of 230 controls (who had received similar free medical care) it was found that length of gestation was the same, but that stillbirth rate was 1/4 and neonatal and perinatal death rate 1/2 that of the controls. (Differences were significant when stillbirths and neonatal deaths were pooled). Only 13 mothers 'dropped out'.

A well designed study with important results.

See also *Nutr. Rep. Int.* 17:217-228, 1978 and *Arch. Latinoamericanos Nutr.* 29 (4) Suppl. 1 :77-97 and *Nutr. Rev.* 36 (9):278, 1978 and items D18, D33, J22 and J39.

*J22 Mora, J.O. et al. Nutritional supplementation and the outcome
1979 of pregnancy: I. Birth weight. *Am. J. clin. Nutr.* 32 (2):455-462 (NBL)

Colombian women at risk of malnutrition were supplemented from the 3rd trimester (see item J21). Mean birth weight of male, but not female, infants was significantly higher. Reason for sex difference is not known.

The experimental design and good documentation of the 2 groups permit the conclusion that the results are valid.

See items D18, D33, J21 and J39.

J23 Nathan Associates, Inc. An evaluation report of the P.L. 480
1978 Title II program in Sri Lanka. For USAID 132p.
(Nutr. Plann. Doc. no. 639. C.B. NBL)

Describes an evaluation of the CARE supplementary feeding programme for mothers, preschoolers and primary school children. USAID foods were used to prepare 'thriposha', a formulated food and biscuits. On the whole the programme was considered 'impressively good' but recommendations for improvement are given.

Little hard data are given. This is a rather muddly report to use and utilization rates for the biscuits or Thriposha do not seem to be reported. The nutritional impact of the programme is clear.

The programme is also reported in items J19 and L12.

J24 Nathan Associates, Inc. An evaluation report of the P.L. 480
1978 Title II program in Bolivia and Morocco. For USAID.
1979 Washington, D.C. (from abstracts in Nutr. Plann. 2 (2)
no. 637 & 638)

These two reports give the results of evaluating USAID programmes using the framework described in the item B32. The impact of the programme on nutritional status could not be determined in Bolivia (no reason given) and in Morocco it depended on amount of ration consumed.

J25 Nelson, D. P., Sahn, D.E. & Rogers, B.L. An evaluation report of
1979 the P.L. 480 Title II program in India. Ann Arbor, Mich.
Community Systems Foundation. For USAID 141p
(Nutr. Plann. Doc. no. 761 C.B. NBL)

Describes an assessment of the programme in India carried out by US and Indian external evaluators who interviewed officials and beneficiaries, and observed activities. Because of lack of scientifically valid indicators of programme effectiveness, the methodology was based on looking for consistency in the subjective findings. Conclusions were that agreement on programme objectives would improve efficiency and effectiveness, and that the lack of improvement in health and nutritional status was largely due to low coverage, ration sharing, substitution, poor targetting and inadequacy of rations compared to real needs.

A good discussion of the programme.

See item D30.

J26 North-South Institute. Handle with care: skim milk aid to
1979 developing countries. Canada, Ottawa. 80p For 10
Canadian agencies. (341.2 N82 NBL)

An evaluation of the effect of skim milk in programmes sponsored by Canadian agencies in Bangladesh, Haiti, Honduras, India, and St. Vincent, West Indies. It was concluded that the milk was not contributing to a decline in breastfeeding and was reaching the very poor although maybe not those in greatest need (partly because of maldistribution in the family).

Based on mainly subjective data.

J27 Paez-Franco, J. The national nutrition program in Colombia.
1973 In Berg, A. et al. *Nutrition, National Development and Planning*. Cambridge, Mass. MIT Press p335-356
(612.39 In8 NBL)

The weight and height increments of 4 745 preschoolers enrolled during 1970-71 in a (?) take-home feeding programme (food from USAID, WFP and local sources but no details of rations, distribution or amounts consumed) were compared to those of 'reference' Colombian children (i.e. of high socio-economic status). Supplemented children showed higher height increments (perhaps because they were stunted). Weight increments of 'fed' children who were initially malnourished (based on % of W/H) were significantly greater than those of the reference group but increments among initially normal 'fed' children were similar.

Lack of controls makes validity of results difficult to assess; more details of the programme would make the results, if valid, more useful.

*J28 Rao, N.P. & Vijayavaghan, K. Spin-off benefits in nutrition
1976 programmes. *Indian J. med. Res* 64 (8) : 1107-1118 (LIB)

A supplementary feeding programme, which was a component of the Indian Population project in Karnataka, supplied weekly take-home rations of local foods to children aged 6 - 24 months (200 kcal and 7 g protein) and 'mothers' (400 kcal and 14 g protein).

The consumption and utilization of the rations at home was evaluated by interviewing a sample of 200 women from villages selected according to their distance (0-7 km) from the distribution centre and the day of week on which they received rations. A sample of auxillary workers and beneficiaries and non-beneficiaries from eleven randomly sampled fed and non-fed villages was interviewed to assess the impact of the feeding component on MCH and FP services.
Results indicated that 67% of beneficiaries attended 80% of the distribution days but that in 72% of families the supplement was shared, mainly by other children. The feeding component had increased antenatal clinic attendance and increased utilization of other clinic services.

This appears to be a quite well designed study which has produced some useful results.

See items D18 (p163-165), D26, D28, G32 and National Institute of Nutrition, Hyderabad. Annual Reports for 1973-1976.

J29 Rajalakshmi, R. et al. The effects of supplements varying in
1973 carotene and calcium content on the physical, bio-chemical and skeletal status of preschool children. *Br. J. Nutr.* 30:77-86 (NBL)

The weight, height and skeletal increments over six months of 43 2-6 year old children were examined. They were greatest for children receiving food supplements with additional carotene and calcium and lowest in children receiving neither food supplements nor additional carotene and calcium.

An interesting but small scale trial.

J30 Rush, D., Stein, Z. & Susser, M. Diet in pregnancy: a randomized
1980 controlled trial of nutrition supplements. New York, Alan R. Liss 188p (613 R89 NBL)

When pregnant black US women were given high protein or balanced energy/protein supplements there was little effect on subsequent birth weights. An increase in prematurity, and mortality among premature babies was found in the high protein supplement group. Supplementation appeared to mitigate the effects of smoking on birth weight. The results of similar trials in Canada, Colombia (item J09), Guatemala (item I07), Taiwan and Holland are discussed.

A well planned trial with some interesting results and discussion.

See items D08 and D18.

*J31 Sastry, J. G. et al. Special nutrition programme : an evaluation
1980 study in Karnataka, Hyderabad, Nat. Instit. Nutr., Indian Coun. med. Res. 66p (India C.B. NBL)

The Special nutrition programme (SNP) was started in 1970-71 by the Indian government with the aim of raising the nutritional status of preschool children and 'mothers' from underprivileged groups. Over six million recipients were receiving rations (300 kcals and 8-10 g protein) at a cost of 50 paise/head/day at the time of the report.

The SNP in Karnataka run by the State government since 1974, covered 2.5 lakh recipients (95% of whom were children joining the SNP at the age of 0-6 years), through 1 200 feeding centres in 1978. The rations were usually bread and milk (take-home) in the urban slums and cereals and pulses (on-site and take-home) in the tribal areas.

Feeding centres in Bangalore, Mysore and eight other randomly selected districts were categorised by area characteristics. (e.g. old/new; slum/tribal) and 120 centres selected by systematic random sampling.

About 200 'fed' and 50 control children aged six to over 96 months, were selected from the area of each feeding centre. Body weights, clinical deficiency signs and the communities reaction to participation in and assessment of the SNP were recorded by teams of trained investigators. Data on the operations of each centre were also collected. 17 087 slum and 976 tribal beneficiaries and 3 416 slum and 230 tribal controls were examined.

Since it was suspected that some control children had shared the rations, the data from a small un-fed sample of similar children, collected previously, were used for some comparisons. In spite of the lack of base-line data and dietary information, and the possible role of non-programme variables, it was felt that the lower prevalence of overt clinical signs and the better % W/A status was probably due to some extent to the SNP. Also, children in the SNP for 18 months or longer had significantly better % W/A than those fed shorter periods. Most centres provided food at least 24 days each month. About half the recipients shared their rations with siblings. Substitution for the home diet was stated by mothers to have occurred for 14% of urban and 61% of tribal children.

Most families knew the reason for the SNP and approved of it, but community contributions to it were practically zero. Physical facilities were unsatisfactory and the urban centres were overcrowded. Food supplements were generally acceptable.

This appears to be a well planned study with a large sample. The main weakness, pointed out by the authors, is that the controls were probably sharing some of the rations. This was one of the reasons for the in-depth evaluation described in item J32. The fed and control groups had different age distributions which may have biased the results.

However, in spite of these limitations, the results do suggest the SNP had some impact on nutritional status.

See also items J12, I11, and J32.

*J32 Sastry, J.G. et al. Special nutrition programme : an evaluation
1980 study in Karnataka : further studies in Bangalore slums.
Hyderabad, Nat. Inst. Nutr., Indian Coun. med. Res. 26p
(India C.B. NBL)

The study was undertaken to validate the results of the evaluation described in item J31 in which the programme is described.

Seven feeding centres in Bangalore city were selected from those previously examined so has to represent different categories of the slum population. Eight similar areas in which there was no feeding were selected as controls. Clinical deficiency signs and body weights were collected from 584 'fed' children and 1 056 from the control areas. 24-hour dietary recalls were collected from a random sample of 181 'fed' children and 207 controls. Anthropometric data from the 'fed' children were also compared to those collected in the ssme area in the previous survey (? period between two studies not stated).

Bitot's spots and angular stomatis were more prevalent among the controls. There was a significant shift towards better % W/A among 'fed' than control children (Gomez classification). There was also an improvement in % W/A between the previous and present study among children living in the SNP areas (probably due to the longer period for which they had been fed). 89% of the fed children were consuming at least 1/2 the provided supplement, with less milk than bread being shared with siblings. Some substitution for the home diet occurred since consumption levels of the home diet were higher for controls. However, total consumption of calories and protein was significantly higher for the 'fed' children. A significantly larger proportion of 'fed' children consumed adequate levels of protein and calories (35% 'fed' and 21% controls). The authors conclude that where children are conauming at least 2/3 of the supplement they have a lower prevalence of nutritional deficiency signs and better body weight status than controls.

This appears to be a well designed study with good controls and adequate information for judging the validity of the results. The presence of dietary data helps support the conclusion that the better nutritional status is due to supplementation rather than other factors. It is not made clear how representative the seven sampled feeding centres are of the State total of 1 200, originally examined.

This study is one of the few that strongly indicate the positive benefit of food supplements, at least in an urban area where undernutrition is prevalent and where energy intakes are low.

J33 Schlesinger, C. Chilean experience : planning and implementatinn
1980 of national and nutritional programs. In Santos, W. et al. eds. *Nutrition and Food science* Vol. 1. New York, Plenum Press p105-133 (612 (063) In 81 (1978) NBL)

Describes and assesses the government intervention programme for vulnerable groups which include (p123), the complementary feeding program in which milk is distributed to children up to six years and 'mothers'. Recent modifications have improved operational aspects and brought about increased consumption by infants. Pilot studies on milk acidification, iron fortification and formulated foods are underway.

A useful overview of the programme. Results of the pilot test of iron fortified milk are awaited with interest.

See item J15.

J34 Solter S.L. The World Food Program Project 599 : an instance
1980 of inappropriate integration. In Managing health systems in developing areas. ed. O'Connor R.W. Lexington Books. D.C. Heath & Co., Lexington, Mass. p146-147
(614 Oc 5 NBL)

The aim of WFP project, Afghanistan 599, was to provide extra energy and protein to 'mothers' and chronically ill young children, and to increase regular MCH clinic attendance. There was no direct evidence that the food improved nutritional status of intended beneficiaries. Sharing appeared to be widespread and some was sold. Food distribution did increase clinic attendance to the extent that there was little time left to provide health services.

Although seemingly based on subjective evidence only, it appears that the project was probably not improving nutritional status. However, the fact that attendance was increased is useful information for those programmes when there are adequate facilities for providing health care to increased numbers.

J35 USDA Evaluation of the effectiveness of the WIC. Office of
1981 Policy, Planning and Evaluation, Food and Nutrition Service. (mimeo) 31p (S.B. 2h NBL)

A review of the major studies evaluating the Special Supplemental Food Program for Women, Infants and Children in the US. Although different evaluation designs and techniques were used, the results indicated that participation was associated with decreased incidence of low birth weights and improved growth and hematological status.

Although all these studies were carried out among the lower income groups in the US, some of the evaluation designs used may be of interest to those working in the Third World.

J36 Vaughan, J.P. et al. Report on the pilot trial to determine
1980 some of the effects of distributing dried skimmed milk in mother and child health clinics in Khartoum and Omdurman, Sudan. Mimeo report from London School Hygiene & Tropical Medicine, Univ. of Khartoum & Ministry of Health, Khartoum. 48p (C.B. NBL)

This describes a research project to determine the effects of distributing DSM to young children. At 4 MCH clinics, 1 kg of DSM was given each fortnight for seven months to mothers of 297 new attenders aged 6-26 months. 1 kg of beans was given to mothers of 329 children at four similar clinics. The children were examined at the start of the trial and every two weeks thereafter. Home visits were made monthly.

There was no clear evidence from the trial of any harmful effects of distributing DSM to mothers. There appeared to be no increased rate of infection in the DSM group, breast feeding was not stopped earlier, weight gains among the two groups were similar.

As the authors point out, there were several problems with the methodology of the trial that affect the interpretation of results. The most important of these were: the DSM and beans groups were not randomly assigned and there were differences in their socio-economic characteristics and initial weights; there was no information on the extent to which the DSM and beans were actually consumed; several children in the bean group were enrolled after the start of the trial; the variable quality of data collection.

The main value of this paper is in its recommendations on how to organise a well controlled trial on the effects of feeding DSM. The validity of the actual results are difficult to assess.

See also: Vaughan, J.P. et al. An evaluation of dried skimmed milk on childrens' growth in Khartoum province, Sudan. *Nutr. Research* 1(3):243-252 (NBL)

J37 Vemury, M.K.D. Supplementary food; its effect on iron and
1979 vitamin A intake of preschoolers. *Nutr. Rep. Int.* 20 (2):
159-170 (NBL)

Diet recalls from about 250 mothers of preschoolers enrolled in a Colombian CARE-assisted take-home feeding programme (8.94 mg iron and 1616 I.U. vitamin A) showed that, among children who ate the supplement, there was an overall increase in intake of iron and vitamin A compared with those who had not consumed the ration. (? significant difference).

Of limited relevance.

J38 Vijeyalakshmi, P. & Usha, V. The impact of iron and folic acid
1981 supplementation on expectant mothers participating in
modified special nutrition programme. *Indian J. Nutr.& Diet*
18 (2):45-52 (NBL)

Five groups of expectant mothers (n = 10-25) were given combinations of various supplements (i.e. 200 mg ferrous sulphate/5 mg folic acid/bulgur wheat + Balahar + oil) for 100 days. One group was a control. Groups given iron had significantly higher haemoglobin levels. The group given both iron, folic acid and foods had the highest serum folic acid levels.

The results are not very conclusive, especially in regard to folic acid supplementation. The sample used was quite small, the characteristics of the women are not described so the degree of similarity among groups is not clear and it is not known how much of the supplements were actually consumed.

J39 Vuori, L. et al. Nutritional supplementation and the outcome of
1979 pregnancy: 2. Visual habituation at 15 days. *Am. J. clin. Nutr.* 32 (2):463-469 (NBL)

Infants of supplemented Colombian mothers (see item J21) showed more initial visual attention and quicker visual habituation than infants of unsupplemented mothers.

Appears to be a well controlled experiment.

See items D18, D33, J21 and J22.

J40 WFP/IGC Terminal report: Colombia 095 - 'Feeding programmes in
1970 the Department of Caldas' WFP/IGC 18/10 Add. 9 (F) (S) (NBL)

Describes an evaluation from 1967-69, of a WFP-assisted take-home feeding programme supplying dried milk, oil and dried fish through health centres to preschoolers and mothers. In a sample of 15% of all child beneficiaries (total unknown) a drop from 10% to 2% in 3° malnutrition rate (Gomez) and from 39% to 30% in 2° malnutrition rate was reported.

Difficult to assess validity and relevance of results because no details are given of amounts or nutrients in rations, attendance rates, likelihood of family sharing, how beneficiaries were actually selected, number of drop-outs or possible non-programme variables.

J41 WFP/IGC Interim evaluation report: Colombia 549 - 'Nutrition
1974 education and supplementary feeding of vulnerable groups' WFP/IGC 26/11 Add. A2 (F) (S) (C.B. NBL)

Describes several evaluation studies of the WFP-assisted supplementary feeding programme for mothers, preschoolers and primary school children which were carried out by the Instituto Colombiana de Bienestar Familiar. The programme was said to reach 25% (1 1/2 million) of the vulnerable population in seven areas of Colombia of which about 500 000 were preschoolers. Nutrients distributed per head ere not reported. Some of the results were:

- among a group of 9 200 preschoolers, the 3° malnutrition rate (Gomez) decreased by 8% and the 2° malnutrition rate by 4% after 6 months of feeding. There were no controls or mention of drop-outs;
- in a group of 560 preschoolers the malnutrition rate (? all degrees) dropped from 52% to 29% after 12 months of feeding. There were no controls or mention of drop-outs;
- in a group of 182 malnourished children (i.e. 'low' W/H) the half who were fed for 6 months showed a significant increase in mean weight over the half who were not fed. Result seems valid (although not known if groups were randomly selected or matched) but since 'dose' of nutrients received is not stated usefulness of data are limited;
- there was a significant difference in weight gains between 123 preschoolers who were fed for 6 months and 39 controls (sampling details not given). 'Malnutrition rate' dropped from 73% to 22%;

- the proportion of babies weighing less than 2 500 g born to supplemented mothers was 4% and to control mothers was 11% (no significance testing);
- preschoolers, whose mothers had received nutrition education 'appeared' to be significantly better nourished than those whose mothers had not;

Because of ommissions in the data reported, the validity of the results is difficult to assess (see comments on item J42), although the indications are that the programme was having some positive impact on nutritional status.

See item L10.

J42 WFP/IGC Interim evaluation report: Mexico 307 - 'Complementary 1974 rural feeding' WFP/IGC. 26/11 Add. A3 (F) (S) (C.B. NBL)

The programme was started in 1971 and provided take-home rations to 135 000, mainly rural, preschoolers (350 kcal and 20 g protein) and 20 000 'mothers' (500 kcal and 25 g protein). By weighing a sample of 597 preschoolers in 1971 and again in 1973 (503 remained) it was found that the percent of children with 1° malnutrition (Gomez) decreased from 51% to 39%, 2° from 11% to 8% and 3° from 0.5% to 0%.

No controls were used to allow for non-programme variables and there was a 15% drop-out rate. Therefore, validity of results is questionable.

For comment on evaluation see item D06, p49 and Maxwell, S. 1979 Tracing feeding programme drop-outs. *Food Policy* 4 (1):52-53.

J43 Wray, J.D. Direct nutrition intervention and the control of 1978 diarrhoeal diseases in preschool children. *Am. J. clin. Nutr.* 31 (11): 2073-2082 (NBL)

During 1964-65 nutrition education was given, in 5 weekly sessions, to the mothers of malnourished preschoolers in Candelaria, Colombia. 1b DSM/week was provided to each index child, his preschool sibling and his mother if pregnant or lactating, for the year. Children's weights were plotted monthly. Anthropometric measurements and recall data on diarrhoeal episodes were collected before and throughout the programme. Of the 413 mother/child pairs, 234 remained in the programme for the whole year and 182 attended regularly. Mean number of diarrhoeal episodes decreased throughout the year in all age cohorts and among all children whether their nutrition status had improved or worsened. The decline was considered to have been caused, at least sometimes, by change in nutrition status and perhaps by the education given.

Although the author felt that non-programme variables could not have accounted for the decline in diarrhoea the absence of controls and the high drop-out rate makes this possibility difficult to exclude. Recall data on morbidity may not be reliable. It is not known which of the two main programme inputs, if any, accounted for the results. The results do not seem to support the author's conclusion that supplementary DSM decreases the incidence of diarrhoea.

For critical discussion see: *Amer. J. clin. Nutr.* 31 (11):2087.

See also items: *D01, *D05, *D08, D10, D12, *D18, *D21, D26, *D28, D30, *D32, *D33, D34, *D35, D36, *E03, E05, E07, E09, E10, *E11, E12, *E23, E26, F06, F11, G09, G15, *K03, K04, L10, M09, *O12.

4.8 Feeding programmes for households

*K01 Baertl, J.M. et al. Diet supplementation for entire communities.
1970 *Am. J. clin. Nutr.* 23 (6):707-715 (NBL)

The effect of giving supplementary foods to whole families was evaluated in four independent and remote subdivisions of a Peruvian sugar plantation. In one subdivision a take-home ration of wheat noodles (250 kcal and 7.5 g protein) was distributed to everyone weekly. In another, similar rations were distributed but the noodles were fortified with FPC, so protein content was 12.5 g. The other two subdivisions acted as controls. Supplementation continued for five years, weights and heights from the whole population were taken at least six monthly and all deaths were recorded.

The vast majority of families collected and consumed all the rations. However, the supplement displaced some family food and therefore the increase in calorie consumption was thought to be slight. No significant improvements in growth occurred in preschoolers or school age children that could be attributed to the feeding programme but the decline in infant mortality was significant and in preschool mortality 'impressive'.

Basic design was good and, although few details are given, the data collection appears to have been well supervised. Desegregation of growth increments of initially malnourished and well nourished children and information on food consumption would have made interpretation of results easier. Non-project inputs that improved socio-economic status in one control subdivision highlights the difficulty of having viable controls in field evaluations. However, this and other non-programme variables are discussed and account taken of them in interpretation of the results.

The lack of growth response of preschoolers could be due to an unchanged energy intake (due to substitution), or to children not being very malnourished initially. Collection of birth weights would have indicated whether drop in infant mortality could be associated with improved maternal nutrition.

For a review see item D11.

K02 Martorell, R. et al. Protein-energy intakes in a malnourished
1979 population after increasing the supply of dietary staples.
Ecol. Food & Nutr. 8 (3):163-168 (NBL)

When supplied with unlimited rations of corn and beans over a period of eight weeks, the adults in 47 Guatemalan families significantly increased consumption so that energy intake was approximately at requirement levels and protein intake was above 'safe intake levels'.

Although few details of the food consumption survey are given this appears to be a well controlled trial which produced useful results.

*K03 Mora, J.O. et al. The impact of supplementary feeding and home
1981 education of physical growth of disadvantaged children
Nutr. Research 1 (3):213-225 (NBL)

Urban Colombian families with malnourished children were randomly given food supplements (DSM, oil and bread supplying 623 kcal and 30 g protein per family member) or home stimulation (to encourage parent/child interaction) or both interventions, or none. The growth of the children was assessed over the first 36 months of life.

Supplemented children were taller and heavier than controls and education enhanced this effect. W/H/Age was similar in all groups but supplementation tended to prevent stunting.

A carefully controlled trial in which the effects of the two components of the intervention have been desegregated.

K04 WFP/CFA Interim evaluation and terminal reports: in-depth study
1979 on impact of project Arab Republic of Egypt 535 -
'Development and settlement on newly reclaimed lands'.
Summary report on nutrition impact. WFP/CFA 8/6 Add. 1
10p (A) (F) (S) (C.B. NBL)

WFP supplied food-for-work to new settlers as an incentive, as a source of support and to encourage community development. More than 100 000 households received 3-5 rations/household/day (1 880 kcal and 64 g protein) for three years.

To evaluate the project's nutritional effect, the weights and heights of 163 1/2-6 year old children of four groups of settlers (no food aid; receiving food aid; food aid stopped recently and prior to 1976) were collected by Cairo Nutrition Institute in 1977 (Round 1). Similar data were collected in 1978 (Round 2) from 623 children from the same groups of settlers, 149 being from the original sample. The housewives were interviewed to obtain information on dietary habits, use of food aid and food expenditure. Analysis was done by Decision Data under contract to FAO (See item C28).

Results from cross-sectional data: No significant differences were found in percent of children below 80% W/A, 90% H/A or 90% W/H or in the mean values for these indicators between the four study groups within either rounds 1 or 2. Comparing rounds 1 and 2, 'substantially' less children weighed less than 90% W/H in round 2 than round 1.

Results from longitudinal data: Mean W/A was lower for all groups in round 1 than in round 2 (significant in all but 'receiving food aid' groups) (? no differences in W/H and H/A). The children most stunted in round 1 showed most improvement in round 2.

Consumption of oil and tea (food aid items) and fresh vegetables and sugar was considered by housewives to have increased with resettlment and food expenditure to have decreased when food aid was available.

Evaluation design and objectives are not clearly described (especially in the original report, see below). The numbers in each study group are not always adequate for statistical analysis. Design and analysis does not make allowances for non-programme variables and there is little discussion of this or the possible influence of different age distributions within the group, affecting results. No mention of quality of data collection or of the actual amount of supplements received by household or child. Difficult to understand just what this study was going to prove. However, the evaluation did demonstrate that longitudinal data produced more statistical differences, using fewer numbers, than cross-sectional data.

Few conclusions can or have been drawn from the results except thtt food aid did appear to reduce household food expenditure.

For a more detailed report see Decision Data. 1979. Nutrition effect survey. ARE535. For WFP/FAO. (C.B. NBL)

See also *J21.

4.9 Feeding programmes for school children

*L01 CARE-India. Midday meals programme in Madhya Pradesh; a study
1979 of impact on tribal school children. Rewal, S.
CARE-India, B-28, Greater Kailash, New Delhi 110048.
83p (Nutr. Plann. Doc. no.1249 India C.B. NBL)

Started in 1965, the programme aims to supply to low income tribal school children (primary and residential), a meal (312 kcal and 14 g protein) for 180 days/year. At the time of the report it covered all accessible tribal schools (over 10 000) and 575 179 children. The programme is run by the State, and P.L. 480 Title II foods are provided by CARE-India. The purpose of the programme is to improve nutritional status and attendance.

The impact of the programme on dietary intake, anthropometric measurements and attendance was evaluated in 1978. Since no controls or baseline data were available, comparisons were made between children attending primary schools with different levels of programme efficiency (i.e. percent of actual/expected feeding days). Three-stage random sampling was used to obtain a sample of 3 839 children (mostly in the 7-11 years age group); a dietary survey was conducted on a sub-sample of 2 045 children. data were collected by CARE officials and graduates who had been trained for one week.

On average food had been distributed 108% of the targetted feeding days and 40% of schools had had no interuptions in feeding. Only 19% of schools fed less than 80% of the target feeding days. Because there were so few 'low' efficiency schools, schools were grouped into four levels of programme efficiency using arbitary cut-off points. On average, a child participated in the programme for 86% of feeding days. Home diets were deficient in energy but adequate in protein. 20% of children had no home breakfasts. The children who ate a school meal had a higher energy and protein consumption than those who did not (only 3% of home calories were substituted by the school meal). No trend between school attendance and programme efficiency was found, however, duration of participation in the programme was a significant determinant of attendance.

There was a significant positive relationship between physical measurements (W/A, H/A, W/H) and programme efficiency. The prevalence and severity of malnutrition was greater in schools with low programme efficiency. The generally high programme efficiency was considered largely due to the dedication of the local school organizers.

This appears to be a well designed study considering the limitations (i.e. no controls and few schools of low programme efficiency). The detailed description makes it easy to assess the validity of the results and useful to those evaluating similar programmes. The report is well laid out and easy to use.

The results indicate that the programme improved both dietary intake and nutritional status among these largely undernourished children. Programme efficiency was mainly dependent on central food supplies rather than local factors. Therefore, it seems reasonable to conclude that the relationship between programme efficiency and programme impact was real and not due to local non-programme variables.

It is likely that if a control group had been available, the results would have been more impressive. The report is recommended to all those involved with school feeding programmes.

Also reported in *Fd & Nutr. Bull. (UNU)* 3 (4) : 42-47 1981.

See item L08.

L02 Chandrasekhar, U. & Amirthavani, M. The impact of school lunch
1976 programmes on physical development, mental ability and certain behavioural aspects of selected primary school children. *India J. Nutr. & Diet.* 13 (8):237-243 (NBL)

Reports that the anthropometry and mental ability of 107 5-10 year olds in the lunch programme, was significantly better than that of 107 control children of comparable age, sex and socio. economic level (? at same school). Parents reported improved behaviour.

Head girth was significantly larger in the 'fed' children, suggesting non-programme differences between the two groups. Data are lacking on the 'dose' of nutrients received by the 'fed' group and the reasons why the control group were not in the lunch programme. It is thus difficult to comment on both the validity and usefulness of the results.

L03 Devadas, R.P., Suchetha, P. & Sundari, K. The effect of supplementation of a rural school lunch programme with green leafy vegetables on the nutritional status of children.
1971 *Indian J. Nutr. & Diet.* 8 (4):198-203 (LIB)

Three groups of 60 elementary school children of comparable age and socio-economic status were given: 1) a school lunch (450 kcal and 12 g protein) supplemented with 25 g green vegetables (3.6 mg Fe and 422 µg retinol equiv.); 2) school lunch with no extra vegetables; 3) no school lunch. Nutrition education was given to groups 1 and 2. After 6 months, the nutritional status (height, weight, haemoglobin snd clinical signs) of group 1 was said to have improved 'significantly' over the other groups, particularly in regard to clinical eye signs.

Groups not matched by output variables initially and eye signs are highly subjective. However, results do indicate that those receiving the school lunch did benefit to some extent.

L04 Devadas, R.P., Premakumari, S. & Vasanthadevi, K.P. Evaluation of a low cost meal in a school lunch programme. *Indian*
1975 *J. Nutr. & Diet.* 12 (11):347-353 (NBL)

Evaluates a school lunch programme in Coimbatore City, India over a six month period by comparing three groups of children with an average age of 7 1/2 years. Groups A and B received 600 kcal and 14-15 g protein/child/day. (Group B from cheaper foods). Group C was a control. Said to be significant differences in weight, height and haemoglobin between groups A/B and group C.

However, difficult to interpret the results, as age distribution within groups not given, nor the initial weights nor the reason why group C was not partaking of the lunch programme (i.e. unknown if groups were matched to allow for non-programme variables).

L05 Devadas, R.P. & Premakumari, S. Nutritional impact of school lunch programme on children over a period of five years.
1978 *Indian J. Nutr. & Diet.* 15 (8):257-263 (NBL)

A total of 553 Indian elementary school children who had been in a lunch programme (583 kcal and 12 g protein) for periods of 1-5 years were compared to equal numbers of controls who had not been in the programme.

Significantly higher height and weight increments, and scores for nutritional knowledge were reported for 'fed' children as well as small improvements in attendance rates. Fewer deficiency signs and higher haemoglobins (measured on 25 of each group) were seen in 'fed' children. Improvements correlated with period of feeding.

Difficult to interpret the results as it is not stated if age distribution and socio-economic status were similar in 'fed' and control groups.

L06 Devadas, R.P. et al. Evaluation of a food supplement for children
1979 *Indian J. Nutr. & Diet.* 16 (9): 335-341 (NBL)

200 5-8 year old children were fed (on-site, ? at school) a vegetable protein supplement (345-395 kcal and 14 g protein - cost 35 paise) for ten months using foods available but not normally used in the six trial villages in Coimbatore district. A control group of 200 children of similar age and sex was drawn from the same area. A 3-day weighed food intake survey was conductad on 25 randomly selected children from each group. Anthopometric and clinical data were collected and haemoglobin and other biochemical indices measured.

The dietary survey indicated that the supplement covered the deficiency in intake in calories and several other nutrients. There were significant differences in weight and haight growth between the test and control groups. School attendance rates and mental ability scores wera similar but academic performance (? measured) was slightly better for the test children. There was no significant improvement in mean haemoglobin values which remained below 11.5 g %.

It is not clear where the supplement was fed, but from the dietary survey results, it does not seem to have substituted for the home diet. Controls appear to have been well matched for age and initial weight and height although SD of means are not given. If these were similar for both groups, the validity of the results would be enhanced.

The study does indicate that some improvement in nutritional status, although not in haemoglobin status, can be achieved using cheap, local vegetable foods. It would be interesting to know if similar improvements could also be brought about by lowering the high incidence of sickness.

L07 Escobar, P. G. Mass feeding. In Santos, W. et al. eds.
1980 *Nutrition and food science* Vol. 1., New York, Plenum Press p695-698 (Report of the 11th Internat. Congress of Nutr. 1978) (612 (063) In 81 (1978) NBL)

Evaluations of the Chilean school breakfast and lunch programmes, carried out in 1974, 1975 and 1976, showed various operational deficiencies. The paper describes the changes proposed to overcome these problems and how they were evaluated.

Since the programme does not have a nutritional objective and since it only delivers 1/3 RDA for 188 intarrupted days in a year nutritional impact was not examined.

Too few details given to be useful to planners in other countries.

L08 FAO 1979 The school midday meals (lunch) scheme. In Selected nutritional intervention programmes in Tamil Nadu. Devadas, R.P., Roma, FAO p202-237 (612.39 (548.1) D 49 NBL)

Since 1957, the State government has sponsored a school lunch programme which in 1979 covered nearly two million elementary school children (i.e. 1/3 of school population) who were selected on basis of economic need and given 200 on-site meals/year consisting of bulgar wheat, oil and CSM (from CARE) and rice. Objectives were to improve attendance, nutritional knowledge and food habits. The report includes evaluation studies on teachers' attitude to the programme, on impact of the nutrition education given through the lunch programmes on knowledge, and of impact on nutritional status.

In the latter, (Kamalanathan, G. et al. 1969, *Indian J. Nutr. & Diet.* 6:308-315) the weights, heights, attendance and scholastic performance of 120 children in two schools who were receiving a school meal (500-624 kcal and 15-17 g protein) were compared to 120 controls from the same schools and of the same socio-economic background. Average daily intake from meal was only 118-233 kcals and 3-6 g protein because of infrequency of meals (34-71 meals in 120 school days). No real differences in mean weight and height increments were found.

Since beneficiaries were chosen on basis of economic need, it is difficult to see how the 'fed' and control groups are comparable. Data from children initially undernourished are not desegregated. No results given for attendance or performance in spite of programme objectives. Of limited usefulness.

See item L01.

*L09 Ghassemi, H. 1980 School feeding : problems and prospects. In Santos, W. et al. eds. *Nutrition and food science.* Vol. 1 New York, Plenum Press p667-675 (Report of the 11th Internat. Congress of Nutr. 1978) (612 (063) In 81 (1978) NBL)

An overview of school feeding programmes and a brief summary of some results of impact evaluations carried out in India, Tanzania and the Dominican Republic, all of which indicated a positive nutritional response. Problems and prospects of these programmes are discussed.

A brief but useful overview.

L10 WFP/CFA 1982 Summary of the evaluation study of the impact of supplementary feeding programmes on beneficiaries of WFP-assisted project. COL 549, Colombia.

Will be available in 1982.

See item J41.

L11 Malcolm, L.A. Growth retardation in a New Guinea boarding school
1970 and its response to supplementary feeding. *Br. J. Nutr.* 24:297-305 (LIB)

Giving supplementary milk (270 kcal and 25 g protein) for 10 weeks to 21 primary boarding school children whose diet was deficient by 140 kcal and 15 g protein, resulted in significant improvements in height and weight (compared to controls matched for age and size). When only supplementary energy (270 kcal) was given to 22 children over 13 weeks, significant changes in weight and skinfold thickness, but not height, were found.

Rather small numbers but good controls and results highly significant.

L12 Ministry of Plan Implementation, Sri Lanka. Thriposha and school
1980 biscuit programmes In Nutritional status, its determinants and intervention programmes : interim report submitted to the government. Food and Nutrition Policy Planning Div. Publ. no. 5 p49-69 (C.B. NBL)

In the school biscuit programme, primary schools having the highest percentages of malnourished children were provided with supplies of biscuits, made with CARE-donated wheat flour and local sugar (? nutrients). The ration was 33 g per student per day. Results from an evaluation of the programme (methodology not described) included : not all eligible schools were covered and production capacity needs to be increased; distribution and storage at schools was not always satisfactory; because schools rather than pupils were selected, about 60% of recipients are not malnourished while there are probably about 300 000 malnourished children in unselected schools; because of school holidays, lack of supplies and absenteeism, it was estimated that children probably only received biscuits for 50% of the days in the year; most children took some of their ration home to share with siblings; principals of schools indicated the programme helped improve attendance.

The methods used to evaluate this programme have not been described, probably because this is only an interim report. However, the provisional results will be of interest to those concerned with nation-wide supplementary feeding programmes.

See items J19 and J23.

L13 Powell, C.A. A study of nutritional status and school achievement
1979 and the effects of introducing a breakfast programme in a rural Jamaican school. Tropical metabolism rsesearch unit. Univ. West Indies (Thesis) 57p (Not available in FAO)

A school breakfast (250-380 kcal and 6-13 g protein) was given to 44 high school pupils (average age 12 1/2 years) at a rural day school for three months. When compared with a control group, there was no change in weights or heights but a significant improvement in attendance and arithmetic scores.

An interesting paper, although the sample is very small.

L14 Roy, P. & Rath, R.N. School lunch in Orissa. For USAID.
1972 New Delhi, Council for Social Develop. 107p (from abstract in *Nutr. Plann* 1 (2) no. 216)
(Only appendices in FAO. 362 R81 NBL)

The data from 3 500 boys, 1/2 of whom were receiving a CARE-assisted school lunch (363 kcal and 14 g protein 3 day/week) and 1/2 of whom were controls selected from matched schools, showed that in the 'fed' schools, drop-outs were lower, attendance was better, and enrolment in the lower primary schools was higher (? significant). Benefits were most obvious in the background tribal areas. No physical or scholastic ability differences were seen. Substitution was said not to occur.

See items L01, L08 and L09.

L15 Stevens, C. Food aid and nutrition : the case of Botswana.
1978 *Food Policy* 3 (1):18-28 (NBL)

The author concludes that while the individual child receiving a school meal benefits, it is not known if the school feeding programme had made a significant contribution to combatting malnutrition in the community. Food aid often misses the poorest but many of the poorer benefit.

A useful discussion paper.

See item D32.

L16 Tagle, M.A. Operational conflicts of food aid at the recipient
1980 level. *Fd. Nutr. Bull. (UNU)* 2(3):5-15 (NBL)

Reviews the WFP-assisted primary school lunch programme in six non-randomly selected schools in Senegal. Programme objectives were to improve attendance and nutritional status. However, the lunch was lacking in both quality and quantity and was not available regularly and these objectives were not met. Limited anthropometric measures confirmed that the programme had had no impact on the poor nutritional status of many of the children. The common problems of food-aid at the national level are discussed.

Little hard data on impact of programme but a good overview of the operational problems with this type of food aid.

L17 Univ. Puerto Rico. The Doña Elena project : a better-living
1963 program in an isolated rural community. 113p (C.B. NBL)

A detailed report of an ANP in Puerto Rico which included a school feeding programme and which was strongly supported by the local Government. Growth and food consumption was significantly better in the ANP school children compared to matched controls in a nearby village. Over five years the most significant change was improved housing.

Of limited value.

See also items: D10, *D21, *D32, D36, F13, J08, J23, J41.

4.10 Nutrition planning and policies

M01 Aranda-Pastor, J., Menchú, M.T. & Kevany, J.P. Evaluación
1981 operaciónal de un proyecto de vigilancia alimentaria-nutriciónal *Arch. Latino-Americanos Nutr.* 31 (3):439-459 (English summary) (NBL)

Describes the operational evaluation of the project 'Food and nutrition surveillance system (SVAN)' in Honduras. Conclusions are presented in regard to efficacy, costs in terms of invested resources and feasibility for future expansion.

A paper of interest to those concerned with surveillance systems.

M02 Bidinger, P. et al. Evaluation of Morocco nutrition systems study
1978 unit. Columbia, Maryland., Westinghouse Health Systems. For USAID. (from abstract in item D29)

An external evaluator assessed the value to the government of the Research Triangle Institute's assistance in establishing and implementing a national nutrition strategy. Conclusions based on interviews and reviews of documentation were that the assistance should be terminated because of contractor's inability to communicate with government and deal with central issues.

*M03 Gwatkin, D.R. Food policy, nutrition planning and survival: the
1979 cases of Kerala and Sri Lanka. *Food Policy* 4 (4):245-258 (NBL)

The low mortality rates found in these two states, where per capita incomes are limited, can probably be partly explained by their food and nutrition policies. These include increased focus on the small farmer and extensive subsidized food distribution systems (described) which have led to a relatively equitable distribution of the limited overall food supplies. These policies arose from governments committed more to social, than economic development, and have served as integrating themes for a range of activities directed towards the alleviation of poverty.

The results and conclusions are of considerable relevance to nutrition planners.

M04 Kallal, Z. & Regan, T.F. Nutrition program evaluation in Tunisia.
?1979 Tunis, Institut National de Nutrition et de Technologie 9p
(from abstract in *Nutr. Plann.* 3(1) no. 929)

Describes an 'early warning' evaluation of the national nutrition plan based on 'mini-surveys' of agricultural production and consumption. Data relating the per capita nutritional status of the target population to the gross national food supply are outlined together with a discussion of the evaluation system.

*M05 Knutsson, K.E. et al. Food and nutrition in national development:
1979 an evaluation of the Tanzanian Food and Nutrition Centre
(TFNC). Tanzanian Food & Nutrition Centre, Dar-es-Salaam
& Swedish International Development Authority, Stockholm.
146p (612.39 K78 NBL)

The TFNC, an advisory and coordinating body for food and nutrition activities and research, was evaluated by an external team four years after its inception. The study took into account the constraints facing Tanzania and its overall development strategies. The rationale behind the creation of TFNC, its location in the government structure, its activities, organizational procedures and role in the international field are discussed. Some of the recommendations made are: that the food and nutrition policy be formulated in more detail; that the TFNC receive more political support; that more account be taken of the role of rural women; that TFNC become a parastatal agency under the Ministry of Finance and Planning; that the balance be maintained between TFNC's roles as nutrition institute and bureau of food technology; that the proposed nutrition school be established; that professionals in social analysis and mass communications be recruited.

Although the results are specific to Tanzania, some of the concepts underlying the evaluation may be pertinent to those evaluating similar institutions.

*M06 Lambert, J. Bottle feeding legislation in Papua New Guinea.
1980 *J. Hum. Nutr.* 34 : 23-25

Describes the legislation introduced in 1977 to restrict the sale of feeding bottles and teats. Surveys carried out in Port Moresby among about 140 children under two years of age showed that in 1975 35% were being artificially fed, whereas in 1979, the proportion had decreased significantly to 12%.

A useful summary of this important nutrition legislation and its significant impact.

See also Biddulph, J. 1980 Newsletter from Papua New Guinea. *J. trop. Pediat.* 26 (3) : 127-129 and Lambert, J. 1980 Papua New Guinea's national food and nutrition policy. *Fd. Nutr. (FAO)* 6 (1) : 28-33 and item G03.

M07 Rajagopalan, S. Tamilnadu nutrition project : an approach to
1980 integrated nutrition planning. In Santos, W. et al. eds.
Nutrition and food science Vol 1. New York Plenum Press
p145 - 162 (report of 11th International Nutrition Congress
1978) (612 (063) In 81 NBL)

Describes an attempt to study problems connected with nutrition, using systems approach and considering the welfare and economic aspects of nutrition. Gives an overview of the nutritional contribution (? expected rather than actual) and cost structure of the many types of feeding programmes in Tamilnadu.

Of interest to nutrition planners.

M08 Rusch, W. et al. INCAP/ROCAP Regional nutrition project : mid-project
1978 evaluation. McLean, Virg., Amer. Tech. Assistance Corp.
(from abstract in D29)

The project, started in November 1976, aimed at developing multi-sectoral nutrition planning by providing funds and expertise (from INCAP) to government planning agencies in Central America and Panama. Evaluation of the project in Honduras, El Salvador and Guatemala was carried out by external evaluators in May 1978. It was found that no national nutrition plans had been finalized, no specific projects initiated and therefore no hard evaluation data were available. However, the authors considered that 'significant progress had been made' but that the greatest hazard was overconcentration on institution building, data gathering and development of analytical tools at the neglect of actual action.

M09 Stanfield, D., Eckroad, J. & Sahn, D. Analysis of nutrition-related
1979 activities in Honduras. Ann Arbor, Mich., Community
Systems Foundation. 148p (from abstract in *Nutr. Plann.*
4 (3) no. 1668 NBL)

The successes and problems encountered by the government's multi-sectoral nutrition planning body (SAPLAN) are discussed as well as the country's supplementary feeding programmes and an analysis of community-level nutrition-related activities.

Deficiencies in SAPLAN projects have been due to poor planning and conflicts between government and USAID.

M10 Sycip, Gorres, Velayo & Co. Evaluation of the organization and
1975 strategic effectiveness of the Philippines Nutrition Programme.
For the National Nutrition Council. 130p (C.B. NBL)

Analyses in great detail, the programme's organization and effectiveness.

Of limited relevance outside the Philippines.

M11 Taussig, M. Nutrition, development and foreign aid : a case study
1978 of US-directed health care in a Colombian plantation zone.
Inter. J. Health Services 8 (1) : 101-121 (not in FAO)

Describes a US/Community Systems Foundation analysis and 'solution' of the nutrition problems in the Cauca Valley where intensive large-scale farming is forcing small peasant land holders into a wage economy. The author argues that the 'solution' (which includes encouraging greater consumption of soya) pays no attention to the political or land tenure causes of these problems.

A thought provoking paper.

M12 USAID Technical review of the Philippine nutrition programme.
1978 Washington, D.C. (from abstract in D29)

An external team evaluated the programme in February 1978, by interviewing individuals, visiting programme activities and reviewing written materials.

Although the authors conclude that the Philippine programme 'stands out as one of the best...' the nutritional impact does not seem to have been evaluated and the report is based largely on anecdotal evidence.

See also items G03 and J33.

4.11 Food fortification & high-dose supplements

*N01 Arroyave, G. & Mejia, L.A. Control of hypovitaminosis A in
1979 Central America and Panama: present situation of programs
in central America. Ann. Rep. of INCAP : 89-91
(P2151 M7 NBL)

Gives short descriptions of the status of fortification programmes in Guatemala, Costa Rica, Honduras, Panama, Nicaragua and El Salvador. The evaluation of the programme in Guatemala is described in item N18. In 1979, only 55% of the sugar harvest was fortified due to the increase in the cost of vitamin A although this sugar was to be channelled to low-income and rural areas. In Costa Rica, the fortification programme was being modified due to dietary and blood serum surveys indicating a satisfactory vitamin A level in the population. In Honduras, the programme was functioning normally but in the remaining countries, the programmes were virtually non-existent.

An interesting and useful review.

See items D19, N02, N04 and N18.

N02 Arroyave, G. Dietary deficit of vitamin A in populations :
1980 approaches to correct it. In Santos, W. et al.
Nutrition and food policy Vol. 1, New York, Plenum Press
p617-623 (Report of the 11th Internat. Congress of Nutr. 1978)
(612 (063) In 81 (1978) NBL)

Describes the evaluation, at national level, of the Guatemalan sugar fortification programme. For fuller details see N18.

A useful paper on an important programme.

*N03 Austin, J.E. ed. *Global malnutrition and cereal fortification*
1977 Washington, USAID Doc. no. P/N AAF-237 600p
(664.6 Au 7 NBL)

Contents include guidelines on assessing fortification costs, cost-effectiveness and cost-benefit, coverage and delivery, biological results (physical growth and mortality). The monograph describes in great detail the technological, nutritional and consumer acceptability aspects of fortifying rice, maize and wheat with a variety of nutrients. Examples quoted are mainly from Thailand (item N08), Guatemala (item N28) and Tunisia (item N23). A bibliography which includes items on the nutritional impact of fortification trials is given.

The title is somewhat misleading in that the only type of fortification discussed in detail is amino acid/protein fortification. Otherwise, this is a good and extremely comprehensive review of the trials that have been carried out.

*N04 Austin, J.E. et al. Fortification. Study III of Nutrition
1981 interventions in developing countries. eds. Austin, J.E.
& Zeitlin, M.F. Cambridge, Mass. Oalgeschlagar, Gunn
& Hain. For USAID 89p (612.39 Au 711 Suppl. NBL)

Part of a manual (see item D04) intended to provide guidance on selecting interventions for preventing malnutrition in the pre-school child. Contents include an overview of the purpose, role and common methods of fortification and the design of fortification interventions which take into account needs, nutrient intakes, carriers and alternative interventions. In the chapter on evaluation, the areas covered are costs, effectiveness of fortification and mass doses, and comparison of alternative interventions. Interventions examined include those in which various carrier foods have been fortified with iodine, vitamin A, amino acids, the B vitamins, vitamin D, iron and protein. Interventions in which high doses of supplementary vitamin A and iodine are given are also evaluated. The authors conclude that fortification with iodine and vitamin A has reduced clinical signs of goitre and xerophthalmia, and that mass doses of supplementary vitamin A have also had a positive impact.

The fortification of MSG with vitamin A in the Philippines is described in detail (see item N20)

A useful and comprehensive overview of this subject.

N05 Bakar, S.J. & DaMaayar, E.M. Nutritional anaemia : its
1979 understanding and control with special reference to the
work of WHO. *Amer. J. clin. Nutr.* 32 (2):368-417 (NBL)

Intervention trials of supplementation (Mauritius, Israel, Burma, India) or fortification (Mauritius, Norway, Britain, USA, Sweden, Thailand, South Africa) with iron (with/without folate) are reviewed and guidelines derived for the control of nutritional anaemia in areas of different prevalences.

A useful overview.

*N06 Bautista, A. et al. The effects of oral iodized oil on
1982 intelligence, thyroid status, and somatic growth in
school-age children from an area of endemic goitre (Bolivia).
Amer. J. clin. Nutr. 35 (1):127-134 (NBL)

Describes a trial in which 100 goitrous school children received 475 mg iodized oil by mouth while 100 controls received mineral oil. 22 months later, urinary iodine had increased and goitre size decreased in both groups but to a greater extent in the test group. There were inconclusive data to suggest that correction of iodine deficiency may improve mental performance. It is recommended that the oral dose be increased to 700-1 000 mg.

An important paper for those planning goitre control programmes.

N07 Fritz C. Combating nutritional blindness in children : a case study
1980 of technical assistance in Indonesia. Pergamon Policy
Studies 57 205p (616.39 F 57 NBL)

A informally-written book describing the Indonesian Government/USAID/ Helen Keller International project started in 1977. The planning and setting up of the project, and observations on the children are described in very great detail.

Of limited value to evaluators.

See item N26.

*N08 Gershoff, G.N. et al. Amino acid fortification of rice studies in
1975 & Thailand: I. Background and baseline. *Am. J. clin. Nutr.*
1977 30 (7):1185-1195 (NBL)

and Nutrition studies in Thailand: II. Effects of fortification
of rice with lysine, threonina, thiamine, vitamin A and iron
on preschool children. *Am. J. clin. Nutr.* 30 (7):1185-1195
(NBL)

In a four year trial, 29 villages were grouped so that some received rice fortified with vitamins and iron, some rice fortified with vitamins, iron, lysine and threonine and others unfortified rice. There were no improvements in anthropometric indices, in haemoglobin or haemocrit level or morbidity among children who had consumed fortified rice for more than 66% of the experimental period.

A well controlled trial.

See items N03 and N04.

N09 Indian Council of Medical Research. Massive dose vitamin A
1979- prophylaxis programme and nutritional blindness.
80 Ann. Rep. of Director-General, India, New Delhi p 106
(P54 In 2171 NBL)

A brief summary of the vitamin A programme in India which distributes capsules to young 'at risk' children every six months. In a study amongst hospital admission in Hyderabad preliminary results showed a 30% reduction in incidence of keratomalacia after the programme had started.

Few details given in the report.

N10 Indian Council of Medical Research. Iron foritified common salt
1979- for anaemia prophylaxis. Ann. Rep. of Director-General
80 India, New Delhi p106-107 (P54 In 2171 NBL)

A brief summary of studies which showed that the Fe-fortified salt (1 mg/g) had a significant positive effect on haemoglobin levels of preschool and school age children, adolescents and adults.

Few details given in this report.

See items N12 and N15.

*N12 Nadigar, H.A. et al. The use of common salt (sodium chloride)
1980 fortified with iron to control anaemia : results of a
preliminary study. *Br. J. Nutr.* 43 (1):45-51 (NBL)

The effect of Fe-fortified salt (1 mg Fe/1 g salt) on Hb levels and the prevalence of anaemia among urban Indian school-age children was tested. 383 children in residential schools in the experimental group and 163 in the control group were followed for one year. A significant increase in Hb level and a significant reduction in prevalence of anaemia was found among the experimental but not the control group. The Fe-content of the diet in the control schools was 20-25 mg/day, while in the experimental school (which used only Fe-fortified salt) was 35-40 mg/day. There were no problems with acceptability.

This appears to be a well controlled trial with very pertinent results. The results from large scale community studies are awaited with interest.

See items N10 and N15.

N13 Nat. Instit. Nutr., Hyderabad. National prophylaxis programme
1980 against vitamin A deficiency : an evaluation. *Nutrition
Notes, Nat. Instit. Nutr. Hyderabad.* 1 (3):2 (India C.B. NBL)

200 000 I.U. vitamin A is given 6-monthly to 1-5 year old Indian children under a nationwide programme. In an evaluation of 29 Primary Health Centres in 8 states, 69 300 1-10 year old children were clinically examined. In about 2/3 of the centres, the prevalence of Bitot's spots appeared to have been reduced. Programme ineffectiveness was thought to be due to poor coverage. Maintenance of records was poor and the community not well prepared for utilizing the programme.

This was only a brief summary of the evaluation. The full report is needed before any comment can be made.

See item N14, N19, N21 and N22.

N14 Nat. Instit. Nutr. Hyderabad. Effect of massive dose vitamin A
1981 prophyloxis programme on nutritional blindness. Annual
Report 1980 p215-217 (NBL)

Massive doses of vitamin A were delivered, at home, every 6 months, to all preschool children in the slums of two cities. A total cf 46 551 children were covered.

To evaluate the programme, records were kept of cases of corneal involvement and PEM at the two major eye hospitals in the cities. These cases were traced back to their homes. Results showed a gradual decline in the proportion of cases from the city compared with the surrounding rural districts after the programee started. No cases of keratomalacia had received a massive dose of vitamin A.

An interesting albeit brief report.

See items N13, N19, N21 and N22.

*N15 Nat. Instit. Nutr. Hyderabad. Community studies on iron
1981 fortified common salt. Annual report 1980 p221-224 (NBL)

Salt fortified with iron (1 mg Fe/1 g salt) was introduced into rural Indian villages. 876 subjects of various ages in the experimental area, and 1 093 in a control area, gave finger-prick blood samples before and 6, 12, 18 and 24 months after the intervention.

A significant decline in prevalence of anaemia and a significant increase in mean Hb values was observed in all ages in the experimental group after 24 months, but not among the control group. Among the experimental group, there was little additional improvement after 18 months.

Very important and significant results. A full report of the experiment has not yet been located.

See items N10 and N12.

N16 Ojeda Villalba, F. & Miranda, H. Prevención del bocio endémico en
1978 el Paraguay. Paraguay Min. Publ. Health and Soc. Welfare
4p (from abstract in *Nutr. Plann.* 2 (2) no. 577.

Mandatory iodination of salt was started in 1958. Rates for grade 1-3 goitres dropped from 60% to 18% in the 1970's.

N17 Paez-Franco, J. The national nutrition program in Colombia.
1973 In Berg, A., Scrimshaw, N.S. & Call, D.L. eds. *Nutrition, National Development, and Planning* Cambridge, Mass. MIT
Press. p335-356 (612.39 In 8 NBL)

Evaluations of the goitre control programme were carried out by a Colombian institute. In seven localities, the prevalence of endemic goitre in 1945 was 83% (? in all age groups and ? goitre grade), in 1952, after two years experimental distribution of iodinated salt, it was 34% and in 1963, three years after a national salt iodination programme was started, it was 1.8%. In each survey more than 6 500 people were examined (? how sampled).

Although only incomplete details of the surveys are given, the results indicate the success of the iodination programme.

*N18 PAHO. Evaluation of sugar fortification with vitamin A at the
1979 national level. (Guatemala) Arroyave, G. et al.
PAHO Sci. Publ. no. 384 82p (S)
(612.39 (728.1) Av6 NBL)

Objectives of the evaluation were to evaluate the delivery system, nutritional effect and cost of the programme. 30 families were randomly chosen from each of 12 randomly selected communities. Sugar and retinol intake by 3-day 24-hour recall, serum retinol, growth and clinical signs in preschoolers, and retinol content of breastmilk were measured before the programme and every 6 months for two years thereafter. Data on costs and delivery systems were also collected.

The results are summarized below:

	Before	After programme
% families whose vitamin A intake was less than 50% adequate	83%	17%
Mean intake retinol equivalents/ head/day	221 µg	>600 µg
% children with low/deficient serum retinol	22%	9%

Other biochemical and clinical results confirmed the significant impact of the programme. Sample coverage was over 70%. Costs in US$ were: .0013/lb sugar; .07/inhabitant/year; 3.05/preschooler with low/deficient serum retinol.

A very well designed and executed study which gave highly significant results. The methodology and procedures are described in detail. (A manual and slides in Spanish and English are also available for those evaluating and supervising similar programmes).

The conclusion that this type of programme can significantly reduce the prevalence of hypovitaminosis A and increase the intake of the vitamin among needy groups is highly relevant to nutrition planners.

See also Austin, J.E. 1981 *Nutrition programs in the Third World* Cambridge, Mass. Oelgeschlager, Gunn & Hain and items D19, N01, N02 and N04

N19 Reddy, V. Mass distribution of vitamin A for the prevention of
1980 xerophthalmia. In Santos, W. et al. *Nutrition and food policy* Vol. I., New York, Plenum Press p643-645
(Report of 11th Internat. Congress of Nutr. 1978)
(612 (063) In 81 (1978) NBL)

The Indian national programme for the prevention of vitamin A deficiency is described. 200 000 I.U. of vitamin A in oil was given every 6 months to 1 - 5 year olds.

A simple method for evaluating the effect of the programme was evolved, based on the observation that prevalence of Bitot's spots increases with age. Using the methodology, the programme was evaluated in Andhra, Karnataka, Orissa and Rajasthan States. The results indicated that the programme had been effective in eleven out of the sixteen centres examined.

A useful summary of the programme.

For more details see item N22. See also items C45, N13, N14 and N21.

*N20 Solon, F. S. et al. Research to determine the cost and effective-
1976 ness of alternate means of controlling vitamin A deficiency
(xerophthalmia): final report. Philippines, Cebu Inst.
of Medicine and USA, Cornell Univ. 109p (616.39 So4 NBL)

In order to determine the most effective and efficient programme for eliminating xerophthalmia in the Philippines, three intervention measures were tested in each of 4 ecological zones during 1974-75. Approximately 100 children aged 1-6 years and 40 aged 7-15 years were selected by stratified sampling in each of the 12 areas. The interventions were: 1) public health interventions including disease control, and nutrition and health education; 2) a high dose (200 000 I.U.) vitamin A capsule/child/6 months; 3) two packs/family/day of monosodium glutamate (MSG) fortified with vitamin A (15 000 I.U. per pack). Outcome variables measured were active signs of xerophthalmia and serum vitamin A.

Except for the 3rd dose of capsules, the intended interventions were said to reach the selected children. Reduction in active signs of xerophthalmia was 44%, 73% and 77% for interventions 1, 2 and 3 respectively. Fortified MSG was significantly more effective at raising serum vitamin A levels than public health measures (results from the group on capsules may be invalid). Authors conclude MSG fortification is most effective, and most cost effective and that a national programme, which included elements of other interventions where pertinent, should be considered.

A well designed and carefully supervised project. It might have been useful to have desegregated the results by age. Reasons for the high drop-out rate (35%) at 3rd dosing with capsules are not discussed.

The results have been of importance to nutrition planners in both the Philippines and elsewhere and have considerably strengthened the idea of using fortification programmes to control vitamin A deficiency.

See Solon, F.S. et al. 1980. Control of vitamin A deficiency in the Philippines: a pilot project. *Fd Nutr. (FAO)* 6(2):27-36 and Popkin, B.M. et al. 1980. Benefit-cost analysis in the nutrition area: a project in the Philippines *Soc. Sci.& Med.* 14c(3):207-216 and Popkin, B.M. 1974. Vitamin A deficiency in the Philippines: the development and analysis of alternate interventions. (Dissertation) Cornell Univ. (NBL) and Solon, F.S. et al. 1980 Nutrition Strategies: fortification of monosodium glutamate. In Santos, W. et al. *Nutrition and food policy* Vol. 1., New York, Plenum Press, p 603-616 and item N04.

N21 Srikantia, S.G. Prevention of vitamin A deficiency. *Wld Rev. Nutr.*
1978 *Diet.* 31 : 95-99 (P494 W89 NBL)

Describes briefly, the vitamin A prevention programme in India. 60 000 mcg of vitamin A were given every 6 months to approximately 4 million 1-5 year old children in several States. Evaluation in Karnataka and Kerala showed that it was administratively possible to implement the programme within the existing health structure. In a pilot study, there was a reduction of 75% in the prevalence of occular signs of vitamin A deficiency. The difficulties of obtaining satisfactory baseline data on a large scale are mentioned.

A rather brief review of the programme. For more details see item N22.

See also items C45, N13, N14 and N19.

*N22 Srikantia, S.G. Evaluation of the applied nutrition programme and
1980 the national vitamin A prophylaxis programme. *Proc. Nutr. Soc. India* 25 : 43-47 (NBL)

The vitamin A prophylaxis programme of India, in which 200 000 I.U. vitamin A are given every six months to preschoolers, covers the whole country and has a target of 24 million. An interim evaluation in Karnataka and Kerala (? date) showed the programme had made an impact on the prevalence of occular signs (no reference to this found). A comprehensive evaluation was carried out in ?1978/79 in 13 States where the programme had been in operation for two years.

Four health centres were selected by stratified random sampling in each State and all the children in two subcentre areas of each health centre examined. The method of evaluation used is that described in Item C45.

In 13 of the 29 health centres, the programme appeared to have had an impact on prevalence of eye signs. Administrative problems affected coverage and there was low community awareness of the programme.

Few details are given of the quality of data collection and it is not clear whether the absence of impact in eight centres is due to poor coverage or other factors. Otherwise a useful paper.

See items N13, N14, N19 and N21.

N23 Stare, F.J. et al. Final report of Tunisian wheat fortification
?1976 study. Boston, Harvard University, School of Public Health.
(from abstract in D29)

In a well controlled trial over five years, 3 000 stunted children were divided into three groups and fed with wheat fortified with vitamins and iron or wheat fortified with vitamins, iron and lysine, or unfortified wheat. There was no difference between the groups in any of the many anthropometric or biochemical indices measured.

See N03 and N04.

N24 Suwsnik, R. Fortification trials in a village in Si Sa Ket
1979 Province, North East Thailand. *J. med. Assoc. Thailand* 62 : Suppl. 1 (not in FAO)

No details available.

N25 Suwanik, R. Endemic goitre and experiences with iodated salt
1979 control in Phrae Province, Northern Thailand. *J. med. Assoc. Thailand* 62:Suppl. 1 (not in FAO)

No details available.

*N26 Tarwotjo, I. et al. An evaluation of the vitamin A deficiency
1975 prevention pilot project in Indonesia 1973-1975. Govt. Indonesia and American Foundation for Overseas Blind (now Helen Keller International), New York 61p
(Nutr. Plann. Doc. no. 263 C.B. NBL)

Capsules containing 200 000 I.U. vitamin A or placebos were administered in a double blind trial to 2 812 1-5 year old children on Java. All the children were examined before the intervention and a six and twelve monthly intervals after baseline with a capsule given at each examination.

There was a significant difference in point prevalence of xerophthalmia, after six months between the test group (0.4%) and the control group (3.6%). A similar result was found after twelve months. Throughout, prevalence was higher among boys than girls.

This appears to be a well conducted study, given the constraints of the large numbers examined and the low incidence of xerophthalmia. Of interest to evaluators was the fact that these researchers did not find night blindness to be a useful indicator of xerophthalmia.

See item N07.

*N27 Toureau, S., Pizzarello, L. & Leone, S.E. Evaluation of a program
1979 to prevent xerophthalmia in Haiti. For Govt. of Republic of Haiti. Helen Keller Internat., New York 99p
(Nutr. Plann. Doc. no 1179. C.B. & S.B. 3d NBL)

A targetted distribution of massive dose (200 000 I.U.) vitamin A capsules to ill or malnourished preschoolers and lactating mothers together with nutrition education and staff training was started in 1976. Single capsules were given 4-monthly to preschoolers, 2-monthly to mothers, to all clinical cases, and to all children when vaccinated, through the government health/nutrition infrastructure. In 1977 nutrition auxilaries were trained in xerophthalmia recognition and helped distribution and education activities.

The efficiency and clinical impact of the programme was assessed by the Helen Keller Foundation. A survey of 5 680 0-7 year old children chosen from randomly selected sites (half of which had been surveyed four years previously) was carried out in 1979. Family details, intske of capsules, knowledge of vitamin A, and distance from health facilities were recorded, and all children clinically examined.

A tenfold decrease in prevalence of Vitamin A related corneal destruction was found between the two surveys. However, the prevalence of xerophthalmia was still high. 9.4% of households reported that a child had had at least one Vitamin A capsule. 4.4% of mothers had a 'good' knowledge of 'Vitamin A'.

The programme was being administered best in the Port-au-Prince health district. Only about 60% of capsules sent to health centres were recorded as having been distributed. There were limited results from educational efforts - talks during administration of the capsules seemed most effective. The authors consider that the programme was one of the main factors responsible for the reduction in prevalence of xerophthalmia and that a significant number of the ill and malnourished group were being reached.

The study seems to have been well designed and implemented and its limitations are discussed. It is unfortunate that poor record keeping made coverage difficult to assess.

The evidence for the positive impact of the programme is convincing in spite of operational problems, seemingly limited coverage, and poor record keeping. An estimate of the target number of children would have made assessment of coverage (even though based on mother's recall) easier. That only 10% were said to receive capsules in an area where ill health and malnutrition must be prevalent, indicates either low utilization of health services, poor distribution of capsules or poor maternal memories. This makes the programme's success even more encouraging for others planning similar programmes.

N28 Urrutia, J.J. Corn fortification: a field demonstration
1976 model. Guatemala, INCAP. (from abstract in item D29)

In a well controlled trial, corn fortified with soybean flour, lysine, vitamins A and B, and iron was provided to around 200 self selected pregnant mothers and their offspring. Compared to controls there was no impact on birth weight, post-natal growth or morbidity, but there was a tendency for better growth among 3-5 year olds and a 50% reduction in infant mortality. Results were considered inconclusive.

See items D14, N03 and N04.

*N29 Viteri, F.E. et al. Sugar fortification with Na Fe EDTA.
1979 Evaluation of effectiveness at the population level.
INCAP Annual Report 1979 p107 (S) (P2151 In 7 NBL)

Iron-fortified sugar was given to three study populations in Guatemala in 1979. Another population was a control. Sugar consumption and haemotological surveys showed that over 20 months, the iron nutritional status in the fortified communities was improving.

Important preliminary results of this fortification trial.

See also items G08 and H14.

4.12 Food subsidies

001 Abbott, J.C. Adjustment of food distribution systems to meet
1979 nutritional needs. *Bibthca Nutr. Dieta* 28 : 130-136 (NBL)

The paper examines the relationship between food prices, poverty and incentives for production in developing countries. It cites examples of prices kept within reach of the poor from China and India, and discusses the supporting services needed to encourage production (access, markets, management skills).

A useful paper for those concerned with this type of nutrition intervention.

*002 IFPRI Impact of subsidized rice on food consumption and nutrition
1979 in Kerala. Kumar, S.K. *IFPRI Research report no. 5*
Washington, D.C. (S73 125 5 LIB)

The subsidized rice programme substantially improved nutrition and consumption levels of the poorest households. It is concluded that a subsidy programme is more effective in this respect than other forms of direct resource transfer.

An important and useful paper.

*003 IFPRI The impact of public foodgrain distribution on food consumption
1979 and welfare in Sri Lanka. Gavan, J. & Chandrasekera
I. *IFPRI Research report no. 13* Washington, D.C. 54p
(S73 125 13 LIB)

Free rice rations contributed to a better standard of living and, indirectly, to more diversified diet among low-income groups and a more even pattern of rice consumption throughout the country. Nutritional standards dropped and mortality rates rose when rations were reduced, harvests were poor and basic food prices rose.

An important and useful paper.

See also item D19 and 007.

004 IFPRI Food supply, distribution and consumption policies within a
1979 dual pricing mechanism: a case study of Bangladesh.
Ahmed, R. *IFPRI Research report no. 8* Washington, D.C.
(S73 125 8 LIB)

Two-thirds of the subsidized grain was distributed in urban areas. However, extending the rationing programme to the countryside would be expensive and if food aid were used, it would discourage local production.

See items D19, 005, 006 and 015.

*005 Institute of Nutrition and Food Science. Acceptance of Sorghum :
1979 a study of the public food distribution system in Bangladesh,
University of Dacca, Bangladesh 71p (613 M18 NBL)

500 MT of sorghum (provided under P.L. 480 Title II) was distributed in 1978 through selected ration shops in three places in Bangladesh to test the potential of sorghum (a low status food) in targetting towards the lowest income groups. Purchases of sorghum among those eligible to use the ration shops was highest among the rural poor. The rural group normally obtains much less of their cereals through the ration system than the urban ration card holders. Therefore, it was concluded that the introduction of sorghum into the rural ration has the potential of sharply biasing offtakes toward the poor and of increasing the benefits that this group derives from the system - provided the rural ration system can operate satisfactorily.

For reasons why the scheme was abandoned, see item 015.

See also items D19, 004 and 006.

*006 Karim, R., Majid, M. & Levinson, F.J. The Bangladesh sorghum
1980 experiment. *Food Policy* 5 (1):61-63 (NBL)

Describes an experiment to target sorghum, a low status, nutritionally valuable food, to the poorer population groups through a ration system. Sales of sorghum were highest among the poorer rural sections of the community, indicating that the system has the potential to benefit the most needy. However, the size of the rural (unlike the urban) grain ration is very small and not all this ration is actually distributed. Even where sorghum was available, the rural ration resulted in a real income increase of about 2.5% of the lowest income groups. Thus the provision of sorghum is unlikely to have much impact until the ration system is reoriented towards the rural poor.

An interesting report with pertinent results for those concerned with food distribution and ration systems.

See items D19, 004, 005 and 015.

007 Ministry of Plan Implementation, Sri Lanka Evaluation of food stamp
1980 scheme. In Determinants and intervention programmes:
interim report submitted to the government. Food and
Nutrition, Policy Planning Division. Publ. no. 5 p33-48
(C.B. NBL)

In 1979, a food stamp scheme replaced the more expensive ration system (see item 003). Food stamps were issued to households whose income fell below Rs 300/month and could be used to purchase a variety of cereals, sugar, milk and dried fish. Kerosene stamps were issued which could also be used to buy foodstuffs.

In 1980, more than 1% of Sri Lanka's households were surveyed. In this report the results from six districts (encompassing about 20% of all households) are given. It was felt that these districts were representative enough of the country for preliminary conclusions to be drawn.

3 435 households (out of an unknown total sampled) were found to be eligible for food stamps but 10% were not receiving them (64-83% of these had tried but failed to get the stamps). Also, because criteria for eligibility were mainly in terms of household income rather than per capita income, there was discrimination against poor large families. The stamps were used mainly to purchase rice. In spite of the higher value of stamps to families with small children, purchases of milk were low. A separate inquiry found that sugar purchases were higher and rice lower than found in the survey reported here.

Food stamps were usually exhausted in the first two weeks of the month. More households preferred the old ration system than the food stamps (which were not indexed to rising prices). Few respondents thought that stamps or commodities purchased with them were being sold. The scheme covered 1.6 million households and cost about Rs. 1 540 million (Rs. 962/household/year). The costs of the ration scheme which covered half the population in 1978 was 38% higher. Several recommendations for improving the scheme are given.

Few details of the methodology are given; the number of families sampled who were not eligible for food stamps is not stated, and tests of significance not done. However, the preliminary results are of considerable interest to nutrition planners and the final report is awaited with interest.

008 Pinstrup-Anderson, P., de Londono, N.R. & Hoover, E. The impact of
1976 increasing food supply on human nutrition : implications
for commodity priorities in agricultural research and policy.
Am. J. Agric. Econ. 58 : 131-142 (LIB)

The model described in the paper (see item C33) was applied to the population of Cali, Colombia. Results suggested that relative increase in total nutrient supply was a poor indicator of relative nutritional impact. The authors conclude that, while increases in food supply and reduced prices are important, improved nutrition will only result if there is an accompanying rapid rise in incomes.

Of interest to nutrition planners.

*009 Rogers, B.L. & Levinson, F.J. Subsidized food consumption systems
1976 in low-income countries: the Pakistan experience. Cambridge, Mass. M.I.T. *Internat. Nutr. Planning Prog. Discussion Paper* no. 6 103p (C.B. NBL)

This study examines the general economic, administrative and political feasibility of subsidized consumption systems. These systems aim at resolving the conflict between the necessity for higher prices to provide incentives to producers and the need to avoid any reduction in food consumption of the neediest segments of the population caused by these higher prices. Pakistan's subsidized consumption network is taken as an example and several questions are addressed by the authors: how do subsidized food consumption systems work? How much do they cost? Do they create administrative burdens? Who benefits?

This analysis of the Pakistani system indicates that its nutritional and income redistributional effects are substantial. It provides a supplement of 8.6% of the energy and 24% of the protein recommended intakes, and an increase in income of 8.7% in the second lowest income class. However, the authors also criticize the system which is extremely costly and which creates administrative burdens.

An important and useful paper.

See items 010 and 011.

*010 Rogers, B.L. Consumer food price subsidies and subsidized food
1978 distribution systems in Pakistan. Cambridge, Mass., M.I.T. *Internat. Nutr. Planning Prog. Discussion paper no.* 13 203p (Pakistan C.B. NBL)

This dissertation examines the functioning of Pakistan's ration shop system and addresses a number of questions, i.e. what are the nutritional and economic impacts of the system? What does it cost? What are the conditions for s more cost-effective system?

Conditions for effective subsidies are analyzed and criteria for choosing the food to be subsidized are proposed. These conditions which improve the targetting to poorer groups are the following: the subsidized food should ba popular among the tsrget group and should provide a substantial portion of the energy and protein intake; the price elasticity of demand for these goods should be high in the target group and low in the non-target group; the income elasticity of the target group should be declining so that an increase in income will result in a proportionally smaller quantity purchased. Whole meal atta (100% extraction of flour) which was one of the two foods subsidized meets these criteria but the second subsidized product, sugar, does not. The coverage of the nationwide network of ration shops and health centres is examined and suggestions are made for improvements.

An important and useful paper.

See item 009 and 011.

*011 Rogers, B.L. et al. Consumer price subsidies: Study V of
1981 Nutrition interventions in developing countries eds. Austin,
J.E. & Zeitlin, M.F. Cambridge, Mass., Oelgeschleger,
Gunn & Hain. For USAID 114p (612.39 Au 711 Suppl. NBL)

Part of a manual (see item D04) intended to provide guidance on selecting interventions for preventing malnutrition in the preschool child. In this study, the role and common forms and usage of consumer price subsidies are overviewed and intervention designs discussed. In the chapter on evaluation, it is pointed out that these programmes have a generally low cost effectiveness (in terms of improved nutrition status) but often serve multiple government objectives. Case studies on Pakistan's ration shops (items 009 and 010) and Mexico's subsidized milk distribution (item 012) are given.

A very useful overview of the subject.

*012 Rogers, B.L. et al. Case study : subsidized milk distribution
1981 in Mexico. In Study V of Nutrition interventions in
developing countries, eds. Austin, J.E. & Zeitlin, M.F
Cembridge, Mess., Oelgeschlager, Gunn & Hein. For USAID
p79-114 (612.39 Au711 Suppl. NBL)

This study describes the government's subsidized milk programme in Mexico City which distributes reconstituted imported dried milk. This accounts for nearly 1/4 of the milk distributed in city and is sold for less than 1/2 the price of milk in the free market. Administration of the programme, which was evaluated in 1977-78, was good, with an element of community participation and monitoring. Data collected from approximately 200 'milk' homes and 200 controls, indicated that there was no significant difference in protein or energy intake or among anthropometric measurements on children (however control children may have been initially better nourished). The programme provided economic benefits to many low-income families but did not reach the poorest families.

A good and very detailed account of an urban subsidized food programme.

*013 Selowsky, M. The economic dimension of malnutrition in young
1978 children. World Bank Staff Working Paper no. 294, 78p
(S 2186 7 NBL)

Nearly half the world's population, of which 1/3 are children under 10 years, lives on diets which are deficient in calories. This study discusses the magnitude of the problem and examines the cost effectiveness of specific interventions designed to solve it. The theory advanced is that malnutrition is the result of the inequitable distribution of world income, and not the result of an insufficient supply of food. It is a poverty problem and not a food problem.

The high incidence of malnutrition among children of developing countries is not likely to be reduced with acceptable speed through plausible rates of growth in the national product and food production. The only effective solution lies in either a more equitable income distribution, or in supplying food to the target population at a price below its normal supply price.

The author examines policies and programmes that governments can initiate in order to augment the energy intake of children in the target population (i.e. transfer of cash to target households, ration shops for specific population groups, take-home and on-site feeding programmes and food stamps). The cost effectiveness and administrative feasibility of these policies and programmes are analyzed with particular emphasis on their income and substitution effects on energy intake by the family.

A detailed and important review.

*014 Solimano, G. & Taylor, L. Food price policies and nutrition
1980 in Latin America. *Food and Nutr. Bull. (UNU)* Suppl. 3
170p (S 237 41 NBL)

The purpose of the workshop, which this monograph reports, was to analyze how food price policies affect the nutritional status of populations in Latin America and the Caribbean. The main outcome was the listing of areas for further research and suggesting the conditions needed for carrying them out in the Third World. Topics covered include: a discussion, using a hypothetical economy, on the effect of macro-mechanisms, such as food price policy on food consumption; the effects of changes in real income on nutrition; case studies on the effects on nutrition of food prices and/or incomes from Mexico, Jamaica, Trinidad-Tobago, Chile and the Dominican Republic.

It seems from the papers and discussions that in almost all the countries examined, present food price policies are not helping improve the food consumption of the poor ssgments of the population, but are often benefitting the rich.

This supplement contains many interesting data, concepts and conclusions which will be of particular interest to economists, planners and nutritionists. A chapter bringing together the main conclusions on the effect of food price policies on food consumption and nutritional status would have been useful.

See *Food Policy* 6 (3): 208-218 1980 for a review.

015 Levinson, F.J. The Bangladesh sorghum program. In Toward
1982 success in combating malnutrition : an assessment of
what works. ACC-SCN Doc. no. 72/20 p8-11
(ACC/SCN S.B. NBL)

A urban and rural ration system was tested for three months in 1978. Subsidized rations of sorghum, costing about 1/2 the cost of rice were sold through rationshops. The scheme showed that, in ths rural areas a substantial numbsr of peopls purchased the sorghum and that there was a strong bias towards the lower-income consumers. However, the scheme terminated quickly, partly because U.S. wheat farmers were reluctant to provide sorghum (which would have eventually been replaced by local sorghum) and partly because rationshop dealers found the low prestige sorghum had not black market value. In spite of this, the author considers that the scheme could have had a positive impact on nutritional status since it could have doubled energy intake and also cut income spent on grain by half amongst the poorer segment of the population.

There is little hard evidence that the subsidised ration would have reduced malnutrition; no intake studies were done. The chief value of the paper lies in its analysis of why the scheme failed.

See items D19, 004, 005 and 006.

See also items D22, D37 and *M03.

4.13 Formulated Foods

*P01 Heimendinger, J., Zeitlin, M.F. & Austin, J.E. Formulated foods.
1981 Study IV of Nutrition interventions in developing countries. ed. Austin, J. E. & Zeitlin, M.F. Cambridge, Mass. Oelgeschlager, Gunn & Hain. For USAID. 179p
(612.39 Au 711 Suppl. NBL)

Part of a manual, (see item D04) intended to provide guidance on selecting interventions for preventing malnutrition in the preschool child. In this study, the role of formulated foods and their forms and usage are described. Various aspects of the intervention design are discussed, including nutrient composition and quality control, sources of raw materials, processing, acceptability and distribution and pricing. In the chapter on evaluation, both costs and effectiveness are considered. The authors conclude that while formulated foods do alleviate malnutrition if consumed, prices are often above the target groups purchasing capacity and subsidization seems necessary to ensure production and access by low-income groups.

A case study of a home based community level weaning food from Upper Volta is described in detail (see item G20). Appendices include a list of current and terminated formulated weaning foods and details of how to conduct cost-effectiveness evaluation.

This is a comprehensive study of the effectiveness of formulated foods - an area in which relatively little has been written. It is recommended to all involved in this field.

P02 Kracht, U. Marketing unconventional protein-rich foods : one
1973 form of nutrition intervention. In Berg, et al. *Nutrition, national development and planning* Cambridge, Mass. MIT Press p213-216 (612.39 In 8 NBL)

Concludes, using Incaparina as an example, that the contribution of the commercial marketing of nutritious new foods has not been an effective nutrition intervention.

Of limited usefulness now.

P03 Orr, E. The contribution of new food mixtures to the relief
1977 of malnutrition. *Fd Nutr. (FAO)* 3(2):2-10 (F) (S) (NBL)

This survey, covering the production, retail and use of nutritious new food mixtures in 36 countries, is a follow-up to a similar survey carried out in 1972 (Orr, E., Tropical Products Institute Report G73). The previous finding, that very few of the food mixtures reach the low-income groups through the normal channels, was confirmed. They have not therefore made any direct contribution to alleviating malnutrition. However, the establishment of more national food and nutrition policies and the growth of national food processing industries may lead to an increased role for these new foods.

A very useful review.

P04 Wise, R.P. The case of Incaparina in Guatemala. *Fd Nutr. Bull.*
1980 *(UNU)* 2 (2):3-8 (NBL)

Describes the distribution and utilization of Incaparina in Guatemala and discusses some of the reasons for the limitation of the programme. It is concluded that the product is still too expensive to have much effect on malnutrition of the poor. Recommendations include trying to reduce price by licensing small scale producers, packaging in larger units and using less expensive packaging materials.

A useful overview of the subject.

See item P02.

See also items E07, G08, *G20, G38, I06, I10, J01, J19, J23 and L12.

4.14 Training

Q01 Dubbeldam, L.F.B. ed. Report of the evaluation of the regional
1981 training programme on food and nutrition planning.
Centre for the Study of Education in Developing Countries.
The Hague. 84p (612.39 D85 NBL)

The report of a mission that evaluated the regional programme on food and nutrition planning held in the Philippines. It was concluded that the training programme should continue and several recommendations were made.

Of interest to those running similar programmes.

Q02 FAO Evaluation report of the FAO training course on group feeding
1977 programmes for South-east Asia, Bombay (India) 1976
Veltman, M., Nairobi, EXTRACO/FAO (African/Sahel C.B. NBL)

Q03 FAO Rapport d'evaluation sur le cours de perfectionnement FAO
1978 sur les problemes d'alimentation des collectivities (PAC)
pour l'Afrique-Pays du Sahel, Dakar, Senegal 1977. Capon J.C.,
Dakar, EXTRACO/FAO (Africa/Sahel C.B. NBL)

Q04 FAO Evaluation report on the national training courses on emergency
1979 feeding programmes. The Philippines. San Fernanco,
Pampanga, 1978, Zamboanga City, 1979. Blink, D., Rome,
EXTRACO/ESHE/FAO 13p (Acces. no. 8004901
NBL)

Q05 FAO Rapport final de synthèse : seminaire national de
1979 perfectionnement des responsables des programmes d'alimentation
des collactivites: Magos, L., Niger, Niamey 1979, Rome, FAO
9p (Niger C.B. NBL)

Q06 FAO Bhutan : national training on group feeding programmes.
1979 Bhutan, Thimphu, 1978. Philip, T. Rome, FAO, Fd. Policy
and Nutr. Div. 13p (Access. no. 41839
NBL)

Q07 FAO Rapport du Seminaire national de nutrition sur les programmes
1979 d'alimentation des collectivites. Cap-Vert, Mindelo, 1979.
Rome, FAO. (Cap-Vert C.B. NBL)

The efficiency and effectiveness of the courses in items Q02 to Q07, and Q10 were evaluated by analysing the responses given to participants before, during and at the end of the courses, and to lecturers at the end of the course. Areas evaluated included the participants initial familiarity with the course subjects; their satisfaction with the course programme and organization; increase in knowledge; participants opinion on achievement of course objectives and how well it had prepared them for their future duties.

Of value to those running similar training courses.

Q08 FAO 1979 Fourth report on higher education and training in food and nutrition at agricultural universities and colleges in India. Berger, S. ESN : MISC/79/10, Rome. 49p (NBL)

Reports a mission evaluating the above project which was operating in 12 universities. The consultant concludes that the overall evaluation of the project was very positive. Possible new avenues for the project are listed.

Of value to those planning similar training.

Q09 FAO 1979 Evaluation and supervision within a nutrition programme in Rwanda. Appendix to project 'Evaluation of Training for Development' CGP-INT 255 (NET) Veltman, M., EXTRACO, FAO, Rome. Doc. no. UNDP/RWA/71/002 67p (Accession no. 44229-79-W & C.B. NBL)

The working paper describes an evaluation in 1977 of a FAO-executed project which was orientated mainly towards the training of officers in the field of nutrition. The objective of the evaluation was to obtain regular information to measure the project's achievements and to set up a evaluation system within the project.

Of limited use.

Q10 FAO 1980 Evaluation report on the 3rd FAO regional training course on management of group feeding programmes. Nairobi 1979. Rome, Agric. Educ. & Ext. Ser. (Accession no. 8108985 NBL)

See remarks under Q07.

Q11 FAO The use of the FAO Field Programme Management Training Pack:
1980 food and nutrition. (Experiences, results and outlook).
Summary report. Simmersbach, F. ESN, FAO, Rome (mimeo) 7p
(ESN Not indexed box NBL)

Reports the results from national workshops to review the training pack, held in Zambia (1978 version), Kenya, Malawi, Swaziland, Botswana and Lesotho (1979 version). Training courses using the material had been held in Zambia and Botswana.

In general, the Pack was considered appropriate to fill a gap in existing training materials and supportive of government extension programmes. However, opinions on specific aspects of the Pack varied from country to country and it was considered that : the very varying educational background of potential trainees means that considerable local adaptation of materials may be needed; the guide for course leaders is not self-instructive and trainer training is required; the teaching skills required for each teaching unit are not equal; while the content of the Pack was generally appreciated, there was a need to emphasis different topics in different countries; certain teaching units needed improvements; the trainee field note-book could be improved by providing more background material, and using a ring-type book into which sheets could be inserted; flip-charts would be preferable to overhead transparencies (some of which were not understood); the tape cassette was not always practical for field use; the course should be lengthened.

Evaluation of trainee's knowledge four months after the course indicated that too many concepts were taught to be retained. It is concluded that, before a final evaluation of the Pack can be made, the material for the final version must be pre-tested. This version must then be used in on-going training. Only after at least a year's use can performance changes among trainees be assessed.

A useful report for others evaluating similar training materials.

Q12 Ministry of Health, Kenya. Family health field educators training
1975 series. Part IV Evaluation, in Part 3. Evaluation, Review
and Replanning. Krystall, A. Maternal and Child Health/
Family Planning Programme. 25p (Doc Centre ESH)

Describes the way in which a 9-week training course for family planning field workers was evaluated. The course included aspects of family feeding and nutrition as well as methods of family planning and communication. Five weeks were allowed for course work, 3 for field practice and 1 for revision and evaluation. The evaluation consisted of structured discussions among the trainees and questionnaires dealing with the objectives and the major sessions of the course.

The results showed that the training had not provided the trainees with good criteria against which to assess their own competence.

However, they did indicate the areas in which trainees felt that the training had been most inadequate.

The publication is of interest to trainers of similar courses although the results are limited to the students' perception of the course in its final week. There is no objective evaluation of the difference the course made to the students' work performance.

*Q13 Rohde, J.E. et al. Training course for village nutrition
1979 programs. *J. trop. Pediat. & Environ. Child Hlth* 25 (4) : 83-96 (NBL)

Describes the aims, selection and preparation of participants, syllabus and activities of a course for those training village health workers to organise, supervise and evaluate village nutrition programmes. The course objectives, teaching methods, and schedule is given in great detail. The evaluation of the course consisted of on-course pre- and post- tests, observation of behaviour in group sessions, follow-up questionnaires some months after the course; on-site visits to programmes started by participants are planned.

As the authors state, the effect of the course can only be finally evaluated in terms of improved health brought about by the nutrition programmes conducted by the participants. However, evaluation of the intermediate goals such as improved knowledge and motivation, and initiative of programmes, was conducted although the paper gives little hard data on the results of these studies. They do, however, emphasize the importance of small group activities and field experiences.

A useful paper for those planning training courses.

4.15 Other development interventions

R01 FAO/COAG 1979 Desk reviews and in-depth study in Bangladesh. *In* Nutrition and agriculture. COAG 79/6 p7-9 (LIB)

A desk review of 39 FAO-assisted projects found that, in only 9 projects, werethe direct beneficiaries those of the populstion who were most likely to be worst-off nutritionally.

An in-depth evaluation of 3 projects in Bangladesh concluded that persons reached directly by these projects would benefit nutritionally in the short run, but that they were unlikely to produce positive nutritional effects among the worst-off.

R02 Foster, P. 1978 Agricultural policies and rural malnutrition. Washington, USAID, Economics and Sector Planning Division, Occasional paper no. 7 (Nutr. Plann. Doc. no. 376 616.39 F81 NBL)

This review and bibliography summarizes the conclusions from studies evaluating theeffect of agricultural development programmes and policies on the nutritional status of the rural poor. The author postulates that one or more of the following changes will have a positive impact on nutritional status: increasing income; narrowing the gap between rich and poor; lowering the price of food; reducing fertility. Nutrition status may worsen if there are changes in food demand patterns. A fairly extensive annotated bibliography which includes items on nutritional policy and planning and elasticity of demand for food, is given.

R03 Goldman, R.H. & Overholt, C.A. 1981 Agricultural production, technical change and nutrition goals. Study VI of Nutrition interventions in developing countries. Austin, J.E. & Zeitlin, M.F. eds. Cambridge, Mass., Oelgeschlager, Gunn & Hain. For USAID 84p (612.39 Au 711 (Suppl). NBL)

The monograph discusses linkages between agricultural growth and food consumption in relation to the policies which affect resource allocation in the agricultural sector. Contents includa: the role of agriculture in the malnutrition problem; consideration of the variables through which agricultural policies generate effects; evaluation of costs and nutritional effects; case study of an agricultural programme in Colombia. In the latter, it could not be shown that the selection of maize production as a preferential activity was the most efficient way of generating income - other strategies may have had more impact on the most nutritionally needy in the community.

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R05 Institute of Nutrition & Food Science, Dacca. Economic and
1978 nutritional effects of food for relief work projects.
Univ. Dacca, Bangladesh. 230p (612.39 (549.3) D 112 NBL)

An evaluation was carried out, in 1976, of food for work projects in Bangladesh, supported by the government, WFP and CARE. Wheat was given for work on small infrastructural projects. Results showed that 99% of recipients were male, most were of the very low income group and had few job opportunities, nutritional intake and status were low, and the ration was too small to significantly affect this. The amount of wheat distributed was too small to affect local prices or wages.

R06 Lunven, P. The nutritional consequences of agricultural and rural
1982 development projects. ACC/SCN Doc. no. 82/19 (ACC/SCN Box NBL)

Case studies of 6 rural projects are described in an attempt to analyze the failure of the projects to provide nutritional benefits. Causes of their lack of success included poor targetting of beneficiaries, misunderstanding local social and economic situations, and problems with credit schemes, cooperatives and choice of crops. A methodology for integrating nutrition considerations into development projects is outlined briefly.

To be published in *Fd Nutr. Bull. (UNU)* and Proc. Workshop, Interfaces between agriculture, food science and human nutrition in the Middle East, ICARDA/UNU, Syria 1982.

R07 WFP Terminal evaluation report on project India 618 - 'Milk
1981 marketing and dairy development' (Operation Flood 1), Rome.
(India C.B. NBL)

The objectives of Operation Flood were to increase availability of milk to urban, vulnerable groups, by increasing milk production by rural low-income groups, and establishing a national dairy industry. DSM and butter oil provided by WFP were reconstituted and sold to generate funds for the project.

After 10 years, WFP aid was terminated. An evaluation mission concluded that the price of milk and the level of urban wages meant that the project was not able to affect the nutritional status of the urban poor. However, it had resulted in a real rise of income among the rural low-income groups who owned one or more cows or buffaloes and this was likely to have raised food intakes.

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